THE

JOURNAL OF GAS LIGHTING,

WATER SUPPLY, & SANITARY IMPROVEMENT.

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THOMAS WILTON, Engineer.

Eastbourne, April 20, 1859.

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Town Hall, Halifax, April 15, 1859.

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FOR

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Tubes of all kinds, with or without Flush Joints, for Artesian Wells, and general Boring Stocks, Taps, and Dies, Boiler-Fittings, Brass Cocks, &c.

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PATENT DRY GAS-METERS.

THOMAS GLOVER,

PATENT DRY GAS-METER MANUFACTURER,

SUFFOLK STREET, CLERKENWELL GREEN, AND
ALLEN STREET, GOSWELL STREET, E.C.

LONDON, March 25, 1859.

THOMAS GLOVER takes this opportunity of thanking Gas Companies and his other Customers for the very liberal support and patronage he has received during the past year, which has far exceeded his most sanguine anticipations, having sold a greater number of his PATENT DRY GAS-METERS since the dissolution of his partnership with Mr. Croll than he was ever previously enabled to do in any one year.

THOMAS GLOVER confines his sole attention to the business of Gas-Meter Making. The propriety of his doing so is satisfactorily proved by his success; and, without the practice of any quackery, or any attempt to delude the public by an absurd exhibition of "Old and New Valves," his Meters are in general use by the Metropolitan Gas and other Companies in this Country and abroad. For example, one Metropolitan Company have now in use above **12,500** of his Patent Dry Gas-Meters; some of these Meters have been fixed for Fourteen Years, and are still in working order, without complaint from either the Company or the Consumer.

THOMAS GLOVER thinks it necessary to put Gas Companies on their guard against parties selling Patent Dry Gas-Meters constructed in imitation of his, but unskilfully made on erroneous principles, and with improper and unsuitable materials.

THOMAS GLOVER'S Workshops are now the most extensive in this or any other Country, and he is thereby enabled promptly to execute orders to any extent required. Purchasers may at any time inspect his Works and the Materials of which his Meters are constructed. He is ready to enter into Contracts with Gas Companies and others to uphold their Stock of his Meters for Twenty Years at an annual charge varying from 2½ to 5 per cent., and to leave always in the hands of Gas Companies Three Years' charge for upholding, as a guarantee for the fulfilment of the Contract.

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PATENT SELF-ADJUSTING & COMPENSATING GAS-METERS

CANNOT BE OVER OR UNDERCHARGED WITH WATER,

and they consequently register the quantity of Gas consumed with greater accuracy than Meters in which the Water-Line is variable.

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Manufacturers of LOWE'S PATENT MOTIVE-POWER METER, for situations where there is an inadequacy of pressure to supply the special requirements of certain consumers in low grounds during the day or night.

Also, Manufacturers of EXPERIMENT METERS, GASHOLDERS, GOVERNORS, MINUTE-CLOCKS, PHOTOMETERS, &c. &c., similar to those used by Mr. King, of Liverpool.

EXTRACT FROM THE REPORT OF MESSRS. LOWE, KIRKHAM, PEARSE, AND BARLOW, ON CROSLEY AND GOLDSMITH'S PATENT METERS.

Our experiments lead us to the conclusion that the patent meter is a practical and substantial improvement upon the ordinary wet gas-meter, inasmuch as the capacity of the measuring chamber is not diminished by an excessive supply of water, nor can it be increased by drawing off water. On the one hand, therefore, the consumer is protected against any intentional or negligent overfilling of the meter, the result of which is to exaggerate the registered quantity of gas actually consumed; and, on the other hand, the gas manufacturer is protected against the fraudulent abstraction of water by the consumer, the effect of which in the ordinary meter is to cause it to register less gas than is really supplied. Time alone can determine whether these advantages are gained at the expense of its durability, or by any complexity which may render its utility doubtful; but, so far as we are able to form an opinion upon these points, the patent meters are not liable to any greater derangement than the ordinary wet meters, nor do we believe they will be less durable.

(Signed) GEORGE LOWE, *C.E., F.R.S., Engineer-in-Chief to the Chartered Gas Company.*
JOHN KIRKHAM, *C.E., late Engineer-in-Chief of the Imperial Gaslight Company.*
GEDDIE PEARSE, *late Engineer-in-Chief to the Incorporated and Provincial British Gaslight Companies.*
THOMAS G. BARLOW, *Civil and Consulting Gas Engineer.*

LICENCES GRANTED TO THE TRADE ON MODERATE TERMS.

JOURNAL OF GAS
NEWSPAPER

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TO CORRESPONDENTS.

W. R., Barcelona.—*Our opinion on the matter has been so fully expressed in former articles, that we have no inclination to renew the controversy.*

J. L., Strabane.—*You omit an important element in the calculation—viz., the length of the main, and whether level or otherwise.*

ERRATUM.

In Dr. Letheby's report to the Commissioners of Sewers, as printed in the second column of page 188, the words commencing with "every day," in the 20th line, and ending with "by the oxide of iron," in the 32nd line, should be struck out, as by an accidental oversight of the reader they are repeated.

NOTICES.

The subscription is 15*s.* per annum, if paid in advance during the month of January, or 18*s.* credit, in two sums of 9*s.* each, in July and January of each year. Post-Office orders must be made payable at the Charing-Cross Money-Order Office, to William H. Bennett, No. 42, Parliament Street, Westminster.

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THE JOURNAL OF GAS LIGHTING, WATER SUPPLY, & SANITARY IMPROVEMENT.

TUESDAY, APRIL 26, 1859.

NOTES UPON PASSING EVENTS.

THE discussion lately raised between the City Gas Company and the Commission of Sewers seems to have been, by mutual consent, consigned to the "limbo of all things transitory and vain;" for both Deputy Harrison and Mr. Gray have allowed the notice of motion by the former gentleman to fall like a spent bolt, a mere "*telum imbelle.*" Mr. Harrison was supposed to desire, in some way or other, to clear the tarnished reputation of the Board he is connected with, for Mr. Gray certainly had allowed, even if he had not encouraged, his parliamentary representative in the late contest to attack the said Board; and thus a very fair issue was brought before the tribunal of public opinion which it behoved all parties to prosecute to trial. It has happened, however, that neither of the parties in the case has had the courage to carry it to the end; and so, after some private communications, the motion of Deputy Harrison, which would eventually have led to an inquiry, has been withdrawn. But the public is entitled to another measure of justice than the one which satisfies the worthy Deputy and his opponent, and it is entitled to ask for a more categorical answer to the accusation brought by Mr. Hope Scott against the City Commission of Sewers than has yet been given. The accusation in fact amounted to this: that the Commission had allowed its powers to be used for the purpose of advancing the private interests of one of its own officers; and no arrangement under the seal of official secrecy can ever clear its reputation from an imputation of so serious a nature. The manner in which the Commission of Sewers has avoided a public investigation of this question must be considered at least to prove that it feels "its withers are not unwrung."

Dr. Letheby, too, seems to feel that he has overstepped the strict limits of his duty, in the manner in which he gave his evidence in the case of the prosecution of the City Gas Company by the Conservators of the Thames, for he has striven to reply to the remarks of the *Medical Times and Gazette* upon the correctness of his scientific deductions. This has been done in a very lame manner, and perhaps it would be sufficient to leave the controversy in the hands of the vigorous critic of that journal, who seems to be little disposed to abandon any of the advantages offered by his opponent. But Dr. Letheby occupies so prominent a position in the eyes of the public, that we feel bound to notice one assertion in his letter of April 12, which, being of a purely technical nature, has perhaps escaped the notice of our contemporary. It is to the effect that "one of the compounds found in the liquid flowing from the sewer referred to, and the marked odour of the liquid, were never found in ordinary sewerage." Now it must be observed that the particular sewer in question could not possibly discharge a liquid which should be precisely like ordinary sewerage, because it only received the drainage of nine houses, and the surface drainage of the gas-works. Under such circumstances, the water flowing in the sewer could never be of the normal character of sewer waters, for the sewers whose waters have been analyzed have not the slightest direct communication with Gas Factories in any shape or way; and Dr. Letheby was at least bound to have shown that no sewer, under analogous conditions to the one he pretended to discuss, contained the salts he asserts that he found in the latter. In fact, there are such sewers about London; and we repeat that it was Dr. Letheby's duty to have compared their contents with those of the sewer he was analyzing, instead of comparing them with *ordinary* sewerage. In his over-anxiety to prove his case, he has thus committed the error of comparing things which are not alike, and rendered his own evidence useless. After all, as the writer of the *Medical Times* properly observes, the question before the magistrate was not as to whether or not infinitessimally small quantities of gaseous products were to be detected in the waters of the particular sewer referred to, but whether those products were present in such quantities as to show wilful and gross carelessness on the part of the workmen of the Gas Company. The first condition of any such investigation in the hands of Dr. Letheby should have been to prove that the sewers receiving the surface drainage of other Gas Factories did not, or could not, yield the salts he asserts he found in this particular one.

Mr. Marrable, the Superintending Architect of the Board of Works, has somewhat unwisely entered upon a newspaper controversy in which the laughers at least will be against him. It is hard, no doubt, for a man of spirit to submit quietly to the misconstructions and the accusations so liberally made by parties whom he has been obliged to offend in the ordinary discharge of his duty; but when Mr. Marrable has lived a few years longer, he will learn that public servants must be prepared for the occasional exhibition of public ingratitude, and that a thick skin is a necessary qualification for the retention of any public office. The personal part of this quarrel between the known official and the mysterious complainants with thre

initials, may very soon be dismissed; not so, however, the graver question it incidentally raises with respect to the merits of the laws under which the said quarrel has arisen. Buildings Bills are proverbially difficult tests of a legislator's skill; and the production of a satisfactory one seems to be nearly as difficult as the discovery of a perfectly happy marriage. But the last attempts to improve the Metropolis Buildings Acts have been more than usually unsatisfactory, and every day discloses some fresh error, defect, or injustice of the new law. Thus it seems, on one hand, that even when a party wall is in a dangerous state, the District Surveyors, who are supposed to be the public guardians in such cases, have no power to order it to be pulled down; but, on the other hand, it would also seem that the Superintending Architect has in some cases the power of preventing a man from building a balcony such as he likes upon his own land, or in front of his own house. The provisions of the Act, moreover, with respect to hot-air flues, are such that, if they were rigidly adhered to, it would be almost impossible to effect any ventilation over a gas-burner in a room of an old house. If the squabble between Mr. Marrable and "the initials" should call attention to the Act under which the supposed grievances of the latter arise, it will, we think, indirectly effect a public good; and therefore, whilst regretting that an able and a conscientious public servant should be exposed to a petty annoyance, we can hardly say that we are sorry to witness the quarrel as it stands.

We have already alluded to the position assumed by our contemporary, the *Medical Times*, in the matter of the prosecution of the City Gas Company by the Officer of Health for the City; but we feel bound to dwell still further upon other articles contained in that publication, if it were only on account of the marked confirmation they afford of the views so often expressed in our own columns. There is, for instance, in the number of the *Medical Times* for the 16th of April, an article upon the duties and responsibilities of Medical Officers of Health, in which the "humbug" so boldly urged against the London Water Companies is stigmatized in far stronger terms than any we have employed, and in which the mischievous tendency of the official misstatements and official empiricism is exposed in the most uncompromising manner. "Truth is great, and it will prevail," says the proverb; but in the mean time it is a source of great satisfaction to us to witness the arrival of so powerful an ally as the *Medical Times* to the cause of common sense against the fashionable empiricism of the day. The nonsense uttered by Dr. R. D. Thomson about the comparative purity of the London waters seems to have moved the wrath of our contemporary as much as any other phase of the official quackery he is so indignant withal; and this is precisely the ground upon which we ourselves have always attacked the validity of the accusations made by the Registrar-General against the London Water Companies. It is, indeed, very easy to talk of perfect purity, and to assert that the waters of Loch Katrine are a very near approach to that beatific state; and, abstractedly, we would willingly admit with Dr. Thomson, or even with Lucretius, before the days of sanitary reform, that "*juvat integros accedere fontes, atque haurire.*" Yet as the writer of the *Medical Times* justly observes, "*surgit amari aliquid*"—the cost! Ere now we called attention to the utter impossibility of bringing the waters of Loch Katrine to London, and we raised the question as to whether, after all, perfectly pure waters were the best for ordinary town distributions. Now, we find that medical authorities, of at least equal eminence with Dr. R. D. Thomson himself, support our views in these matters; and so we venture a step further, and we ask publicly whether anybody has ever been allowed to verify, or to assist in making, contradictorily, the analysis with which that mischievous theorist endeavours "to frighten the public out of its propriety?" Is the Loch Katrine water so pure, are the London waters so impure, as it pleases Dr. R. D. Thomson to say that they are?

The worst of these official accusations, against the London Water Companies especially, is to be found in the general feeling they produce against the latter. Even the honorary Secretary of the very respectable Association for establishing Drinking Fountains seems to have thought it his duty to have his kick against the old lions, and he falsely states, as one excuse for the great cost of the London fountains, that the water supplied by the Water-Works Companies is so impure as to render it necessary to incur a great outlay for the purpose of effecting a second filtration. And here we cannot refrain from expressing the fear that this movement of the Drinking Fountains will terminate like the analogous one of the Baths and Washhouses; and that a laudable desire to supply a great public want will degenerate into a mere clap-trap. The Committee represented by Mr. Wakefield have, indeed, begun already to assume the characters of dog patrons; and so wide do they assert their sympathies to extend, that, not content with the title of philanthropists, they must needs seek the title of philokunists. This is an amiable weakness, no doubt, but it should not have led Mr. Wakefield and his friends to repeat the mischievous quackery of the official alarmists of the R. D. Thomson school; and at any rate, before doing this, Mr. Wakefield should have, at least, studied the subject he talks upon so glibly. He says that the society he represents "have determined not to erect any drinking fountain which shall not be provided with a perfect process of filtration." Now, we ask whether this means simply a removal of the matters in suspension, or a removal of all kinds of impurity? If the former, it implies that the London Water Companies do not do their duty in filtering the water they distribute; and under such circumstances the Drinking Fountain Association would do far more good by compelling the Companies to comply with the terms of the Act of 1852, than they possibly can do by laying out any amount of money in local filtration. If Mr. Wakefield mean that perfect purity is to be the object of his friends' efforts, we fear that the funds at his disposal will soon be exhausted, even if the object they would so seek were desirable, or possibly attainable. The fact is that Mr. Wakefield wanted to appear in print, and he has not measured the consequences of some of his insinuations. He might have told the public that his friends intended to provide dog troughs, without letting out the secret of their crotchets upon the subject of a "perfect filtration" of a series of already filtered waters.

The Middlesex Magistrates have lately quashed the rate of the parish of Paddington, on an appeal from the Great Western Railway Company, on the ground that certain unoccupied and unfinished houses had not been included in the assessable property of the parish. This is another illustration of the difficulty of the existing law of rating; but the decision thus given is not without precedent, nor can we say that we see any injustice in it. The land upon which those houses were built had been previously occupied as agricultural land, and as such it had been rated to the parish. If then the proprietor, with a tolerable certainty of obtaining a far more profitable occupancy, allowed the construction of houses upon lease to take place, it does seem hard that he should be entitled to withdraw his lands from contributing to the public burthens until his speculation should have succeeded. In some cases we have heard of, the same rates have been levied upon lands in process of being covered with building, as were levied upon them as agricultural lands; and this seems to us to be the proper mode of dealing with the case. Be this as it may, we call the attention of our readers to the arguments of Mr. Bovill in the case of the appeal of the Imperial Company against the same parish of Paddington, tried on the same day.

In matters connected with ordinary life, one of the most important events which have taken place in the Metropolis within the last fortnight is, perhaps, the attempted movement of the members of the Building Trades in favour of the nine hours agitation. These are, after all, mere questions of demand and supply; and, therefore, we must begin our remarks on the subject by saying that the London building artizans have chosen the time for their demonstration with singular maladroitness; for the demand for their labour is now so slack that a strike would as infallibly bring ruin upon their own heads, as it has recently done in the case of the Northamptonshire shoeworkers. But even had the moment been more opportune, we question seriously the wisdom of the change proposed. Ten hours a day of manual labour is no severe strain upon either the mental or bodily faculties of the working man; and as for the desire to have more time for intellectual improvement, it is, as Mr. Burchell would have said, all "fudge." Alas! with imminent danger of war hanging over our heads, the chances are that soon no work at all will be found for building artizans; and that the intellectual improvement of the labouring classes will be abruptly checked. *Absit omen!* and may all classes of Englishmen unite at least to uphold the dignity and the glory of their common, and hitherto happy, home. No one knows how soon the day of trial will come to high and low.

Meanwhile, does not the failure of the Enfield Rifle in the active service of the field confirm the opinion we have always expressed, to the effect that there is danger in allowing the

Government to turn manufacturer? How much of the public money has been wasted in this experiment? how much more are our authorities about to risk in the experiments on Lancaster rifles, or on the inventions of Messrs. Armstrong, Warry, Nolan, Palmerston, Mallet, and others? The tale about the Mallet, or Palmerston, gun would have been one of the best illustrations of scientific "snobbism" of the day, had it not cost the nation so heavy a sum; *sed quis custodiet?* who looks after the national purse when the scientific whims of our heaven-born statesmen require to be indulged? In ordinary times we might "grin and bear" these follies; but, with the world in arms, we must husband our resources, and leave experimental cannon and experimental rivalry with manufacturers, to quieter and more prosperous times.

And thus speaking of experiments, we cannot refrain from observing that one of the great inducements for passing the general measure, the Public Health Act, 1848, was that it would hereafter render unnecessary private or local improvement Acts, and that it would save much useless litigation and much outlay for parliamentary purposes. It may be that apparently the latter object has in some cases been attained; but it is more than doubtful whether, to use a common phrase, the remedy has not been worse than the disease. Thus at Croydon, the litigation which has already taken place between the Local Board of Health and the proprietors of the water privileges upon the Wandle, must have cost far more money than any private Act for the purposes of the drainage and water supply of the town could have done. Nor is the matter yet decided, and appeals after appeals, and in every imaginable form, will keep the questions of the Croydon well and of the Croydon sewerage for many months, perhaps years, longer before the public. The Romford and Dagenham dispute seems also to be likely to assume this chronic form, so favourable for lawyers and scientific witnesses; and the imaginary control of the Central Board of Health has been proved to be utterly valueless to prevent its clients from involving themselves in most entangling, and at times most disgraceful, proceedings. Of the latter, perhaps the case of *Lowndes v. The Tunstall Local Board of Health* is one of the most equivocal; for in that instance a public body actually pleaded the Statute of Limitations in reply to the claim of an Engineer who had gained the prize in an open competition, but had been foolish enough to allow his claim to lie in abeyance for a very long time. Certainly, proceedings like the one last mentioned might occur whether there existed a central authority to guide local ones or not; but we do hold that the Central Board is bound to discountenance any such abuses on the part of the public bodies under its guidance, and certainly we hold that it was bound to have prevented both the Croydon and the Romford Boards of Health from discharging the sewerag of their towns in such a manner as to create public nuisances. The question of the Croydon well is another illustration of the uncertainty of our law with respect to underground waters, and we very seriously question whether any of our law courts will take upon themselves irrevocably to decide the point really in dispute; viz., the right of a landed proprietor to all the water he can raise from his estate. Nothing but a special Act of Parliament could, we believe, settle the disputes which must arise on this subject.

Before closing these remarks, we cannot refrain from noticing a rumour which has reached us, it is true, in no very authentic form. We hear that the Medical Officer for Marylebone has of late called upon the authorities of certain ecclesiastical fabrics to execute costly works for the improvement, as he is pleased to say, of the ventilation of such places of public meeting. These works may, or may not, be required—or the rumour we have heard may be in some of its details incorrect. But, as there is seldom smoke without fire, and Dr. R. D. Thomson has already exhibited a tendency to meddle with things which do not concern him, we should not be surprised to hear of his having exceeded his powers in the manner alluded to. The matter shall not be allowed to drop.

THE OIL-OF-VITRIOL BUGBEAR REVIVED.

The oil-of-vitriol controversy still endures, and Dr. Letheby still repeats *ex cathedrâ* his old alarming story. We have no hope of convincing the learned Doctor, but we think that a few explanatory remarks will serve to allay any unfounded apprehensions which his statements may have excited in the minds of gas consumers. We believe that after a little consideration of the matter, every unprejudiced person will adopt Faraday's opinion concerning this alleged production of oil of vitriol by gas combustion, and will say with him, "I think but little of it." Dr. Letheby says *—

> It is *not sufficiently well known* by the public that gas contains a large amount of sulphur in a form that is not readily discovered. This, by combustion, is converted into sulphurous acid, which, by absorption of atmospheric oxygen, *quickly becomes oil of vitriol;* and it is hardly necessary to say that wheresoever this corrosive acid fixes itself upon any textile fabric, it slowly but surely exerts its destructive power.

Now we perfectly agree with the Doctor as to the existence of sulphur in gas, as to the production of sulphurous acid by the combustion of gas, and as to the final oxidation, though not the rapid oxidation, of this sulphurous acid by its admixture with the atmosphere. Whether, under the circumstances, oil of vitriol would or would not result from this oxidation, we shall presently consider. Dr. Letheby goes on to say that 100 cubic feet of coal gas contain, on the average, 20 grains of sulphur, which will produce by its combustion 40 grains of anhydrous sulphurous acid, and which by further oxidation will become 50 grains of anhydrous sulphuric acid, or 61 grains of English oil of vitriol. We propose to base our arguments upon this estimate, which, however, we are under the impression is very considerably higher than any the Doctor has previously published; and heretofore he has been twitted by Messrs. Warington, Leeson, and Lewis Thompson for having obtained 15 and 21 grains of oil of vitriol from 100 cubic feet of gas.

We will first consider the production of the sulphurous acid. The 40 grains of this gas, furnished by the combustion of the 100 feet of coal gas, occupy rather less than one-thirtieth part of a cubic foot; or, in other words, more than 3000 cubic feet of coal gas are required to yield one cubic foot of sulphurous acid. But this quantity of coal gas would yield by its combustion somewhat less than an equal volume of carbonic acid; so that the sulphurous acid, as first produced, would be diluted with about 2000 times its bulk of carbonic acid.

Now, according to the researches of Dr. Roscoe—whose recent experiments upon the carbonic acid of the atmosphere, corroborated as they are by those of Professor Pettenkofer, are acknowledged to be in the highest degree trustworthy—the amount of carbonic acid in any room, however close, is very uniformly distributed throughout, and cannot be made to reach ½ per cent. of the included atmosphere, on account of the rapid osmose, or exchange of foul air for fresh, that takes place as soon as the carbonic acid begins to exceed greatly its normal standard of rather less than one-half part per 1000†. But, assuming the air of a room to be so highly charged with the products of gas combustion as to contain 0·4 per cent. of carbonic acid from that source alone, which in reality is never the case, it would only contain 1-2000th of that proportion—that is, 1-500,000th, or half-millionth, part of sulphurous acid. In other words, it would require a room 100 feet square and 50 feet high to hold this cubic foot of sulphurous acid at any one moment.

To produce this cubic foot of sulphurous acid, an argand burner consuming 5 cubic feet of gas per hour, would have to burn for 600 consecutive hours—that is, for three weeks and four days; or, of course, 600 such burners might burn for one hour; or, we may say that it would require 120 argand burners, each consuming 5 cubic feet of gas per hour, to burn for 5 hours. But throughout this 5 hours, the products of the combustion would be continually escaping by ventilation, so that the amount of sulphurous acid present in the room at any one time, would form but a very small fraction of the cubic foot eventually produced. We say that it would require a room 100 feet square and 50 feet high to hold the cubic foot of sulphurous acid, and that it would require the combustion for 5 hours of 120 argand burners to produce the cubic foot of sulphurous acid; but we can only form a rough guess as to the number of burners that would be necessary to charge, and keep charged, the atmosphere of the room with this cubic foot, or half-millionth part, of sulphurous acid. The number would of course depend upon the ventilating capacity of the room, but we can readily conceive that as many as 1000 or 1500 burners might be requisite.

We trust we have said enough to satisfy our readers as

* *Journal of Society of Arts*, vol. vii., page 215.

† Dr. Roscoe collected the air from a crowded theatre, immediately over the stalls, at the heights of 4 feet and of 30 feet above the stage. In the first case he obtained 0·26 per cent. and in the second 0·32 per cent. of carbonic acid. But these proportions were due partly to gas combustion, partly to respiration. Our calculations are based on the improbable assumption of 0·4 per cent. of carbonic acid being produced from gas combustion alone. Dr. B. Jones' prior and higher determinations of the carbonic acid of the air are acknowledged even by himself to be fallacious.

to the practical impossibility of charging the air of a room with one-half millionth part of sulphurous acid, or indeed with anything like that proportion. But we think that even Dr. Letheby will admit that sulphurous acid, so long as it continues to be sulphurous acid, and to exist in a moderately diluted state, is a very harmless substance. It is one of the feeblest and least corrosive of all acids, and indeed approximates closely in many of its properties to carbonic acid. It exists normally in the gaseous state, and, like carbonic acid, its undue accumulation within a confined atmosphere is prevented by the insensible ventilation described by Dr. Roscoe. It is only through the conversion by oxidation of the sulphurous acid into sulphuric acid that any injurious effects can possibly arise, and to this point we will now direct our attention. Dr. Letheby states that "sulphurous acid by absorption of atmospheric oxygen *quickly becomes oil of vitriol*." We have shown that the quantity of sulphurous acid that can exist in a room is almost infinitesimally small, yet if this minute quantity were quickly converted into oil of vitriol, or concentrated sulphuric acid, most deleterious effects would not fail to ensue. Because while sulphurous acid, by reason of its volatility, is amenable to ventilation, and cannot accumulate; oil of vitriol, by reason of its fixity, would be deposited as soon as formed, and might go on accumulating from day to day to an unlimited extent. But we deny altogether that sulphurous acid is quickly oxidated into sulphuric acid or oil of vitriol; and we do so, not only from our own observations, but upon the authority of all standard chemical works. Gmelin says that "a mixture of dry sulphurous acid and oxygen continues unaltered, but if water be present a *very gradual* condensation takes place, and sulphuric acid is produced." All other authors, who allude to the subject, make precisely the same statement, and use almost the same phraseology. We are at a loss then to conceive how Dr. Letheby can reconcile these descriptions with his dogmatic assertion that gas combustion produces "sulphurous acid, which *rapidly absorbs oxygen*, and becomes converted into sulphuric acid. This is so far an established fact in chemistry that it need not be discussed*."

When sulphurous acid is mixed with a chemical excess of air, even when in a warm moist state, although a minute proportion of sulphuric acid may be quickly detected, yet the great mass of the sulphurous acid remains for a long time unchanged, and its presence may be recognized after days and even weeks of admixture. We have, in fact, no reason to believe that 1-50th or even 1-100th of the sulphurous products, existing at any moment within a room, can be in the state of sulphuric acid. But assuming the air of a room to be charged with one half-millionth part of sulphurous acid, of which 1-20th part was oxidated into sulphuric acid, then the air would only contain one ten-millionth part of sulphuric acid, a quantity which would be exactly neutralized by one five-millionth part of ammonia, which proportion of ammonia is less than the average contained in normal air, according to the determinations of Boussingault and Gräger respectively, and very much less than the average according to the determinations of Kemp, Pierre, and Horsford respectively. But rooms in which a large combustion of gas is going on—and we have indicated the enormous combustion that would be necessary to charge a room with one cubic foot, or one half-millionth part, of sulphurous acid—are usually crowded with human beings, whereby the proportion of ammonia naturally existing in the air is considerably increased by animal exhalations; so that, *à fortiori*, the sulphuric acid, and probably the sulphurous acid also, are abundantly neutralized †. Dr. Letheby seems entirely to overlook the important influence of the normal and extra ammonia of the atmosphere in precluding altogether the formation of oil of vitriol, by instantaneously converting any sulphuric acid that might be produced into the very innocent form of sulphate of ammonia. On this point we venture to quote the following paragraph from Mr. L. Thompson's paper on the subject:—

> No mortal man ever did, or ever can, obtain 21 grains of oil of vitriol from (I will not say 100 cubic feet of gas, but from) 100,000 cubic feet of any coal gas supplied to the public within twenty miles of St. Paul's Cathedral. The substance really obtained is not oil of vitriol at all, but sulphate of ammonia' and upon this I most unhesitatingly pledge my character as a chemist. Oil of vitriol is a highly corrosive liquid, whereas sulphate of ammonia is a harmless solid.

Moreover, we do not think the Doctor is justified in using the terrifying term "oil of vitriol" at all, seeing that oil of vitriol means concentrated sulphuric acid, whereas, even if sulphuric acid were produced in accordance with his views, it would be in a very diluted state, not so strong as the sulphuric acid water sold to the poor under the misnomer of vinegar.

Some years ago, when Dr. Letheby first agitated this matter, Messrs. Warington and Leeson pointed out to him that the proper way to decide the question did not consist in speculating upon how much oil of vitriol might be produced by the combustion of gas, but in analyzing the air of rooms in which gas was burning, so as to ascertain what quantity of free sulphuric acid really existed therein. Had Dr. Letheby adopted their advice and examined the air of theatres, churches, libraries, &c., for sulphurous or sulphuric acid, for ammonia, and for carbonic acid, he would have arrived at a result not only conclusive to himself, but incontrovertible by his opponents, and, we believe, satisfactory to gas consumers, whose recent unfounded alarms upon the subject would thereby have been altogether prevented. Messrs. Leeson and Warington's observations on this subject are as follows—

> To show the actual contamination of the air of an apartment in which gas is burnt, the air itself ought to be analyzed, and we should then probably find that any sulphuric acid generated by the ordinary combustion of the gas has been neutralized by the ammonia frequently contained in it, by the lime or carbonate of lime present in the whitewash or plaster of the ceilings and walls of an apartment, as well as by other combinations. The absence of any such experiment removes from a reflecting mind confidence in these deductions; and then supposing, which is difficult, that free sulphuric acid (oil of vitriol)—which requires a temperature approaching a red heat (620° Fahr.), or rather above the melting point of lead, to sustain it in the vaporous condition—could exist in the atmosphere of an apartment, if its per centage in the air had been shown by experiment, the public would probably have smiled at its infinitesimal proportion, instead of being alarmed at the fearful amount of 15 grains of *oil of vitriol* from every 100 cubic feet of gas.

The experiments of Dr. Prout and of Dr. Letheby are in their very nature inconclusive and fallacious. Moreover, those of Dr. Prout were made at a time when gas purification was very imperfect, and those of Dr. Letheby are directly opposed to the results of other chemists who have operated in a similar manner.

A few words with regard to the decay of book leather. It is certain that complaints of the destruction of leather bindings were made long before the introduction of gas, and were attributed to wood smoke, which contains no sulphur, and to various other causes. On this point we direct our readers' attention to quotations from a French scientific work published in 1770*; to the observations made at the Society of Arts† by Mr. Spencer Hall, the librarian of the Athenæum Club, and by Messrs. Wheatley and Bethell; and to the report of Messrs. Warington and Leeson, from which we have already quoted.

But it is probable that the general use of gas has increased the tendency to deterioration, because, from its cheapness, gas is burnt more freely than any other illuminating agent, so that an undue heating of the atmosphere is habitually produced. Now, leather is a material very liable to suffer from the effects of constant or frequent exposure to a heated atmosphere; and hence, in some measure, its rapid decay. Moreover, during the last twenty years, a large quantity of experimental leather has been made, some of which has turned out very badly. It must be remembered also that the presence of free sulphuric acid in book leather has never been demonstrated, and that the detection of combined sulphuric acid may have been due to deposits of sulphate of ammonia, or to the alum, &c., used in bookbinders' paste. The mode of decay by crumbling is likewise opposed to the notion of its being produced by the action of sulphuric acid. Moreover, since the introduction of gas, it has become customary to bind books in cloth covers, the prevailing colours of which are black, purple, and green. Now, when any of these cloth bindings are acted upon by even very dilute sulphuric acid, they become stained of a bright red colour. But we have particularly noticed in our own library, and in those of our friends that are lighted by gas, that although many of the cloth bindings have faded from the action of light, none of them have become red from the action of acid.

The result described by a Mr. Taylor as to the production, by gas combustion, of an acid liquor strong enough to corrode linen, is absolutely impossible, and is, moreover, in direct antagonism to the experiments of much abler chemists than

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* *Journal of Society of Arts*, vol. vii., page 274.

† Fresenius estimates the natural proportion of ammonia in the air at only one ten-millionth part, which would convert one ten-millionth part of sulphuric acid into bisulphate of ammonia. The production of this proportion of sulphuric acid under any circumstances is very improbable, but its production within a room containing only the normal proportion of ammonia is quite inconceivable. Moreover, ordinary coal gas generally affords to the atmosphere some ammonia that escapes destruction during the combustion of the gas.

* *Journal of Gas Lighting* Jan. 9, 1856.

† *Journal of Society of Arts*, vol. vii., pages 216—218.

he can pretend to be. This bold assertion of an impossible result we feel strongly tempted to call by a very harsh name —by a name not usually admitted into the pages of our JOURNAL.

In recapitulation then we say,—

1. That inasmuch as it is impracticable by any contamination with the products of gas combustion to charge the atmosphere of an ordinary room with 0·4 per cent. of carbonic acid, so is it also impracticable to charge that atmosphere with one half-millionth part of sulphurous acid.

2. And consequently, that a room 100 feet square and 50 feet high, or having a capacity of half-a-million cubic feet, would not suffice to contain one cubic foot of sulphurous acid,—that to produce a cubic foot of sulphurous acid would require the combustion for 5 hours of 120 argand burners,—and that to charge a room with one cubic foot, or half-millionth part, of sulphurous acid, would require that number of burners to be increased many fold.

3. That moderately-diluted sulphurous acid is in itself a very harmless substance,—that it is but very slowly converted into sulphuric acid,—and that the ammonia existing in the air is more than sufficient to convert any sulphuric acid that might be produced into sulphate of ammonia.

4. That leather is a material very liable to suffer from exposure to a heated atmosphere,—and that the characteristic reaction of black and purple cloth bindings with dilute sulphuric acid does not result from the exposure of these bindings to the products of gas combustion.

Circular to Gas Companies.

WE cannot allow the curtain to drop on the serio-comic, semi-tragic, and eminently absurd, performances which, under the title of the Metropolis Gas Inquiry, have been recently performed at the Theatre Royal Westminster, without a few additional passing notes and comments. The principal performers had evidently for some time been acting *contre-cœur*, and disliked the ridiculous position in which they were placed of pretending to investigate a grievance, and of providing a remedy, after the grievance-mongers themselves had admitted there was nothing to complain of. The notion of throwing the responsibility of conducting the investigation upon paid counsel was an ingenious device to extricate themselves from the difficulty, and under the circumstances of the case seemed to resemble the gratuitous advice given by the benevolent physician in *Punch*, who recommended his pauper and somewhat troublesome patient to go to Baden Baden. As an effectual relief from their troubles respecting the Metropolitan Gas Inquiry there have come the prorogation and dissolution, and in the fulness of time the "Comedy of Errors" will be completed by the publication of a ponderous Blue-Book containing the crude undigested evidence.

To form anything like a true estimate of the lamentable break down of the evidence adduced to support the existence of the monster grievance which had been conjured up to delude the ratepayers of the metropolis, it is necessary to refer to the forms and proportions of the Chimera which had been raised by the managers of the gas inquiry. In the report which they fulminated in December last, they fortunately put on record the circumstances which gave rise to their existence. The prominent circumstance was, that after the organization of an extensive system of competition among the gas companies, competition had ceased by the districting arrangements of 1857, and that the gas consumers were consequently exposed to the arbitrary exercise of power without control. Instances of exorbitant demands and of arbitrary exactions were alluded to as indicating the necessity of redress by parliamentary interference; deficiencies in the supply of public lights, and the immense profits made by the gas companies in lighting the public lamps, were mentioned; and deterioration in the quality of the gas was also charged against the companies. The managers averred that a large mass of evidence had been collected in support of these allegations. They consequently called on vestries and district boards to consider that the whole gas rental of the metropolis would be increased one-fourth should the monopoly remain unchecked; that, by providing them with requisite funds, all these evils would be averted; and the managers concluded by stating that if their suggestions were carried out, they had "no fear of the result in the next session, and they will confidently look forward to the complete establishment of all the allegations they have made, and to perfect redress of all the grievances they have called on Parliament to remedy." The evidence given by Mr. Hughes, the concocter of this report, during the three days he was under examination before the committee, not only failed to establish one tittle of the charges thus broadly made against the gas companies, but had a directly opposite tendency. He stated distinctly, as the representative of a great body of the gas consumers of the metropolis, that they were perfectly satisfied with their present conditions of supply, and all they required was, that those conditions should be maintained. The price he thought reasonable, the quality excellent, and the quantity was not objected to. And thus the main point that Mr. Hughes's evidence established was, the correctness of our assertion, made at the commencement of the gas inquiry, that Parliament was called upon to legislate for the fears and not for the grievances of the metropolitan gas consumers.

It is usual after the performance of a comedy to represent some whimsical extravaganza that sends away the audience with a broad grin. But the "Comedy of Errors" at the Westminster Theatre has been succeeded by an afterpiece—"*Who'll Pay the Piper*"—that has had anything but a laughable effect on the actors immediately engaged. The cheques for £100 and £200 on the parish bankers, that were liberally signed in the first flush of enthusiasm, when half-a-million per annum was expected to be saved by the supply of funds, are likely to come back to the drawers for payment by them individually. Many of the ratepayers have from the first objected to the application of the parish moneys to the purposes of the gas inquiry, and cases have been drawn up and submitted to counsel with the view to ascertain whether such payments are or are not illegal. The case was submitted by the delegates of the parishes to Mr. Pashley, whose attention was specially drawn to the Metropolis Local Management Act, 1855, clause 92, which seemed so wide in its interpretation as to justify payment for the expenses of public meetings and other similar matters relating to the public concerns of parishes.

Mr. Pashley's opinion was, that the words of that clause, "expenses in relation to the regulation of public concerns," comprise such an expenditure as is included in the gas inquiry. The ratepayers not being satisfied with this opinion have subsequently taken the opinion of Mr. Keene, and the combined opinions of the Solicitor-General and Mr. Bodkin, on the point at issue, and the weight of legal authority greatly preponderates against the legality of such payments. Mr. Keene, who enters minutely into the question, considers that the only expression of the 92nd clause of the Metropolis Local Management Act which renders any support to the notion that the parish money may be so expended is "public concerns," and that the words "other expenses," which are to be read with "public concerns," refer to "all actual, direct, immediate concerns of the parish, and not to remote, contingent, speculative—above all, not merely experimental."

Again, he likens the expenditure for the gas inquiry to "law expenses," but points out the difference—that the object proposed to be gained is not of such a nature as usually justifies the incurring of law expenses; for, as he observes, "in the present case no immediate exercise of interference with existing things has been attempted; no legislation is immediately sought; and as the inquiry is whether there shall be legislation, how can the present ratepayers be lawfully or justly burdened with expenses which may produce no benefit, and which, if they effect a benefit, only will effect one to be enjoyed by their successors of some time hence?"

The opinion of the Solicitor-General and Mr. Bodkin, though stated in general terms, is more explicit against the authority of vestries and district boards to contribute towards the expenses of the parliamentary inquiry from the funds arising from the rates raised in the respective parishes and districts.

The case submitted to counsel, and the opinions of the legal gentlemen, are inserted in another column. The parochial delegates, and the parties who have signed the cheques for promoting the gas inquiry, will derive poor consolation from their perusal. Had any object been gained by the illegal expenditure of the parish funds, the patriotic vestrymen might have had some satisfaction in paying the costs out of their own pockets; but as the result of the inquiry has tended only to show the utter groundlessness of their complaints, and to place them in a worse position than before, the payment of the money will be their greatest grievance, and will prove no

doubt a heavy blow and great discouragement to their future patriotic efforts.

The delegates appointed by the metropolitan parishes to conduct the inquiry have now to render an account to their constituents of their doings and short-comings during the past session of Parliament. We have again and again recorded how wofully the evidence they adduced failed to establish the necessity of the inquiry, and they will find it no easy task to reconcile the paucity of facts made known, and the general character of the evidence, with their representations and inflammatory harangues.

The first of the parochial boards that has moved in the matter is that of the Westminster district, of which Mr. Hughes is a leading member, and which at his instigation took the most active part in getting up the case against the gas companies. The board naturally expected great things from Mr. Hughes, who had contrived to get himself advanced to a prominent position, and had become, in fact, the leader of the parochial forces in their attack on the gas companies. They were evidently proud of their man, and formed high expectations from the slashing onslaught he was to make on the enemy. After witnessing the result of his efforts and the total break-down of the case he had in charge, it is not surprising that they should feel disappointment corresponding to the exultation caused by their previous expectations. At the special meeting of the board held on Wednesday last, the conduct of the delegates was openly attacked, Mr. Hughes's evidence was subjected to severe criticism, and that gentleman was left in a minority on a question amounting to a vote of censure on his conduct. This is an ungracious return for the ardour with which he has worked to establish a grievance against the gas companies, but it is the natural fate of all demagogues, and might have been anticipated. The fair manner in which Mr. Hughes gave his evidence before the committee of the House of Commons seemed so strongly opposed to the misrepresentations he had made in public meetings and in print, that the statements were, it is true, difficult to be reconciled; but the attack made upon him at the meeting of the Westminster Board of Works should rather have been for previously misleading them by obscuring the truth than by afterwards declaring it. Mr. Hughes's eloquence has been more powerful in its effects than his evidence. He has so strongly persuaded the board that they are suffering from a grievance, that they cannot now be convinced by him that it was a mere illusion, and complain because he has failed to make the grievance as evident to the committee as he had rendered it apparent to themselves. At all events they are sick of the inquiry, and purpose to bring in a bill without further delay for regulating the gas supply of the metropolis.

This would indeed bring the matter to a decisive bearing, and if parliamentary interference is to be resorted to, it is better that it should assume that form than any other. A committee selected from the body of the House, and not from partisans of each side, might arrive at the adjustment of the clauses of the bill that would meet the justice of the case, and perhaps satisfy all parties. It must be some time, however, before matters will proceed so far. A committee of the Board of Works of the Westminster district has been appointed to report upon the proceedings before the House of Commons, and it is probable that when they see the extent of the bearing of the evidence, they may be disinclined to take any further measures. It is certainly not encouraging to future efforts to consider that during the two last sessions of Parliament the case of the promoters of the gas inquiry broke down before a single witness had been called in behalf of the gas companies; and it is very questionable whether, under such circumstances, Parliament will again interfere in the matter. This seems to be an appropriate time for the gas companies to step into action. The misrepresentations of their adversaries have been exposed, and they might now effectually pour oil upon the troubled waters without any infringement of their dignity, and without descending from the high position they occupy. The discussions that have taken place have served to show how much it would be reasonable to grant to the gas consumers to allay their fears of arbitrary exactions, and the evidence in the committee of the House of Commons must have proved to the gas consumers themselves that the grievances they complain of are more in prospect than in reality. A liberal offer from the gas companies to settle existing differences would, we have no doubt, be received in a conciliatory spirit, and thus bring to an amicable termination the agitation that has so long disturbed the metropolitan parishes.

Register of New Patents.

1942.—William Esson, of Cheltenham, in the co. of Gloucester, engineer, for "*Improvements in wet gas-meters.*" Patent dated Aug. 27, 1858.

This invention relates to a peculiar system or mode of maintaining the proper water-level in gas-meters by compensating for the evaporation or other loss of the water in the meter.

According to this invention, the upper part of the meter is furnished with an air-tight water-supply tank, which communicates with the measuring-chamber by means of a feed or supply-pipe so disposed as to be always sealed. The supply-tank is provided with an air-pipe, the lower mouth or orifice of which coincides, or nearly so, with the proper water-level, and a float is contained therein, connected with the ordinary gas-valve, for the purpose of shutting off the gas when the tank is empty or the water therein too low. The water is supplied to the tank by a supply-pipe which is kept constantly sealed. When the water in the meter descends below its proper level by reason of evaporation or other loss, it leaves exposed the lower orifice of the air-pipe, and allows the gas to ascend therethrough, and the water in the upper tank to descend through a pipe for that purpose, until the air-pipe is sealed again by the water in the meter regaining its proper level. The use of the air-pipe in combination with the supply-tank constitutes the essential feature of this invention, and therefore the patentee does not confine himself to the particular arrangement shown in the drawings attached to this specification, wherein the pipe is represented as soldered to and forming part of the outer feed-pipe, although he prefers so to apply it, as it will be obvious, on explaining its action, that it might be applied in other parts of the tank and meter. A pipe is provided which supplies, when necessary, from the tank the requisite quantity of water to compensate for loss by evaporation or otherwise to the front chamber of the meter. The tank is made air-tight, and consequently no water can flow down this pipe until air or gas is allowed to enter the tank. When the level of the water in the meter falls below its proper height, and below the lower mouth of the air-pipe, it will unseal that pipe, and gas will enter the water-tank, at the same time allowing a supply of water to descend into the front chamber, and raise the water in the meter to the proper level, whereupon the air-pipe will be sealed again, and the further supply stopped until again required by the descent of the water below the proper level.

By placing the float within the supply-tank in lieu of in the meter, complete security is given to the gas companies, as the emptying of the supply-tank or reservoir will close the gas-valve. The float is submerged some distance below the surface of the water in the tank, and consequently will not act upon the gas-valve until the tank is nearly empty. For convenience sake the float-spindle is passed through the supply-pipe, connecting it to the valve-spindle by a connecting-arm.

The claim is for—

1. The general construction and arrangement of compensating wet gas-meters, as described.

2. The peculiar system or mode of compensating for the loss of water occasioned in wet gas-meters by evaporation or otherwise, as hereinbefore described.

3. The application and use to and in wet gas-meters of a separate air-tight water-supply tank, combined with an air or gas-pipe, and with a separate and distinct water-supply pipe, both pipes dipping into the water in the front chamber, or in any other convenient portion of the meter, in the manner and for the purpose hereinbefore described.

2100.—Gabriel Prax, of Paris, manufacturer, for "*Improvements in apparatus for separating the liquid from the solid portions of fœcal matter.*" Provisional protection only obtained. Sept. 17, 1858.

This invention relates to a moveable apparatus to be applied to the pipe by which the fœcal matters from water-closets are conducted to the sewers, thereby allowing the liquid portions only to run off in the sewers, while the solid portions remain in the apparatus, which, when sufficiently filled, may be removed, and replaced by an empty one. The apparatus consists of a vessel, of any suitable material, form, or size, to allow of being easily moveable. On the upper part a lid is fitted air-tight, in the centre of which glides a tube for connecting the vessel with the pipe by which the fœcal matters descend from the water-closet to the sewers. This tube conducts the matters into the interior of the vessel, in which is fixed a vertical division-plate, perforated with suitable holes for allowing the liquids to run off through a pipe provided at the bottom of the vessel, which pipe may be connected with a fixed pipe for conducting the liquids into the sewer. In the centre of the upper part of the interior of the vessel a short cylinder, also perforated with suitable holes, is attached by means of a rim fixed to the inner surface of the vessel, which cylindrical part serves in case the vessel might be entirely filled to allow the liquids to run off, for which purpose this rim has a hole for the exit of the said liquids. For removing the vessel, the tube gliding in the lid is let down, and the opening left is closed with a temporary obturator. The empty apparatus is placed instead of the one filled, and the tubes for the entrance of the matters and the exit of the liquids are suitably fixed to the vessel.

2120.—Jean Clément Emile Malvezin, of Paris, gentleman, for "*Improvements in the manufacture of tubes, pipes, or mains for conducting liquids or gas, or for other similar purposes.*" Provisional protection only obtained. Dated Sept. 21, 1858.

This invention relates to improvements in the manufacture of tubes, pipes, or mains for conducting liquids or gas, or for other similar purposes—such, for instance, as tubes for the transmission of sounds—and consists of manufacturing them by means of tissue or yarn of cotton, or of any other suitable textile material impregnated or covered with suitable bituminous or other matters. The tubes may be manufactured by hand by rolling the tissues or yarns at the required thickness around a suitable mandril or core, from which the same is afterwards taken off, or which may remain, if required, in the interior, in which case the mandril must necessarily be

hollow. This rolling on the mandril or core may be done by any suitable machinery, at the same time passing the tissues or yarns through suitable impregnating or covering bath or baths.

2132.—Charles Weightman Harrison, of Woolwich, Kent, engineer, for "*Improvements in filters for purifying air and liquids.*" Provisional specification only. Dated Sept. 22, 1858.

The first part of this invention relates to means whereby air in its passage within or out of dwellings, ships, buildings, and erections generally, may be filtered or purified of noxious or offensive gases.

This is effected by causing the currents of impure air to be brought into intimate contact with a regulated surface of carbon or other similar material, which shall by its absorbent or oxidizing properties deprive such air of unpleasant or injurious odours.

The construction upon this principle of an air-filter or ventilator, which it is found most convenient to form and the most effectual in use, consists in placing a number of moulded carbon plates in a frame at a small distance apart from one another. The air being allowed to pass only through the narrow spaces between the plates, its impurities become destroyed by the oxidizing action of their surfaces. It is also found advantageous to form carbon air-filters with an indented or corrugated surface.

The second part of this invention refers to portable water-filters, and the improvements herein consist of a central chamber or well in the filter, and the combination of a pumping apparatus, whereby the water may be conveniently drawn. It is preferred to form these filters of moulded carbon, or partly of moulded carbon and partly of earthenware, and of a conical or tubular shape.

The third part of this invention refers to the construction of filtering cisterns capable of affording large supplies of pure water.

In a reservoir or cistern of suitable size is placed a number of porous plates of moulded carbon or other material so as to form divisions, the edges of the plates fitting into grooves in the sides and bottom of the cistern, where they are made water-tight. The plates are then cemented together in pairs at the top by means of a strip of carbon or slate, and marine glue or gutta-percha, and the spaces between each pair of plates are filled up with sand or other loose material. Over the whole a perforated tray or slab is placed, which is covered with coarse sand or grit. The water entering at the top passes through the sand and moulded carbon, and from thence it is drawn by proper connexions. Instead of plates, hollow tubes of moulded carbon are sometimes employed; the interatices being in like manner filled with sand, and the purified water drawn off either at the side or bottom, as desired.

The fourth part of this invention consists in forming decolorizing filters of vegetable carbon and bone dust. These are well mixed together, either alone or with sawdust, then moulded in any desired shape, and afterwards burnt in a close oven. In place of bone dust, pure phosphate of lime and alumina are sometimes used, or an oxide of manganese or other metal is mixed with the carbon previous to the moulding, or alternate layers of carbon, and any of these substances are moulded together. Highly porous filters are also manufactured by moulding the sawdust of cork or other light wood and bone dust, without the usual combination of carbon; and these materials are afterwards carbonized in close vessels.

2184.—Frederick John Money, of Thaxted, Essex, surgeon, for "*Improvements in the construction and adaptation of sewers.*" Provisional protection only obtained. Dated Sept. 30, 1858.

It has hitherto been usual to construct sewers with one general opening for the reception and removal of the waste water and sewerage of towns. It is now proposed to construct them with a pipe or connecting-pipes laid therein throughout their entire length, so as to afford separate channels or conduits, one for the liquid and the other for the sewerage; such internal pipes being constructed of metal, earthenware, or other suitable material. The sewerage-pipes are arranged that they may be connected with dwellings by branch sewerage-pipes independent of the ordinary water drains leading therefrom to the main sewers. The pipes laid within the street sewers may have at suitable intervals plugs or valves to relieve them of any excessive pressure, and may, when convenient, be laid at such intervals as to deliver their contents into barges or otherwise for their removal; or, when requisite, the delivery of the sewerage may be facilitated by employing the Archimedean screw or like mechanical means to raise it.

2195.—Hypolite Monier, of Marseilles, and 2, Francis Street, Golden Square, London, manufacturer, for "*A new gas-burner.*" Patent dated Oct. 2, 1858.

This invention consists—first, in using vitrifiable transparent materials for manufacturing gas and other burners; secondly, in new forms and arrangements of the said burners. By means of using glass, porcelain, or any vitrifiable transparent materials, the various appendages of metal or other opaque substances with which all other apparatus are generally provided, are displaced. In the argand burner, the so-called air-sifting wire gauge, made always of opaque metal, is suppressed, likewise the cone, the gallery or chimney support, and the globe stand; and instead of these opaque substances, vitrifiable transparent ones are employed. The whole merit of the apparatus lies in the application of these transparent substances rather than in their form, wherefore the patentee claims any other forms which may be given to them besides those in the drawings attached to his specification, and he claims the application of them, whether to gas-burners, the moderateur, carcel, and all other lamps fed with combustible substances. Vitrifiable transparent materials are not blackened by use, they yield no shade, and are never oxidized; but their transparency and diaphaneity are increased by the light. By means of a division effected in the currents of flame, the light is kept still and ever the same, which advantages are very desirable for the preservation of the sight. By this invention there is an indisputable saving of gas were it only for the absence of all shade.

2223.—William Malam, of Clapham Road, London, gas engineer, for "*Improvements in apparatus for the manufacture of gas.*" Patent dated Oct. 6, 1858.

This invention consists in a new arrangement of apparatus for the manufacture of gas from oils and grease, alone or combined with gas from coal or other like carbonaceous materials.

Over a fire protected by fire lumps two retorts are placed, into which oil is fed through gauge-tubes from above. Over these retorts, in a suitable chamber, coke is placed, and above this chamber is fitted a vessel containing fat or grease. Flues from the furnace at the bottom of the apparatus surround the coke chamber and grease vessel. The gas generated from the fat or grease is made to descend and mix with that from the oil, and is passed through one or more strata of cleansing material. Instead of coke, ordinary coal may be placed in the coke chamber, when it becomes an ordinary retort, and the gas generated from the coal may be mixed or not with that from the oil or grease. Fire-clay cases, formed either in blocks or segments, are placed in the interior of the case of the three-chamber retort, and being arched, serve as a support and protection to the retort. When these fire-clay cases are once thoroughly heated, a large fire is not necessary in the furnace, as the heat retained by the clay will be found sufficient for the manufacture of gas for several hours after the fire has become low. Any required number of feed-tubes may be applied to the apparatus, according to the number of lights to be supplied with gas.

The claim is for—

1. The general arrangement of apparatus for the manufacture of gas from oils and grease, alone or combined with gas from coal, or other like carbonaceous material, as described.

2. The employment of fire-clay linings and bridges for the protection of the outer casing of the apparatus and the retorts.

3. The employment in apparatus for generating gas from oil and fatty substances of a three-chamber retort, as described.

4. The employment of feeding-tubes, gauges, and retorts for the introduction to the apparatus of the oily and fatty liquids or substances from which the gas is to be generated.

2225.—Charles Baylis, of the Poultry, London, solicitor, for "*An improved mode of constructing and arranging underground chambers in populous cities or towns for the reception of gas and water pipes and telegraph wires.*" Patent dated Oct. 6, 1858.

This relates to a method of arranging, enclosing, and protecting gas and water pipes and telegraph wires, so as to admit of access being obtained with facility to any of them, or any part thereof, without disturbing the pavements of the streets or way under which they may be placed, or interfering or disturbing the traffic of the roadway.

This object is effected by placing these pipes and wires in underground chambers composed of lengths of cast-iron or other tubing, of any suitable or convenient size and form, joined together at either ends, so as to form a continuous chamber or gallery, in which openings are made at the top, either in all the lengths of tubing, or at such convenient intervals as may be desired.

The sides or edges of these openings are provided with grooves, in which may be slidden flaps or shutters to close up the chamber. These flaps or shutters should be made with tongues and grooves, and fitted into one another, and at convenient distances apart key-flaps are provided, which hold all the other parts or shutters in their places, and prevent them from being removed until the key-plate is first lifted out of its place.

Instead of being composed wholly of cast-iron, these flaps may be composed of cast-iron frames, into which flag-stones may be secured, so as to present a stone surface to the passengers' feet. Strong sheets of glass may also, if desired, be put into the cast-iron plates at intervals, to admit light to the chambers beneath. By means of these removable plates, openings of any length, and of sufficient width to enable a man to enter the underground chambers, may be obtained with facility, and without obstructing the traffic.

The drawings attached to the specification show an arrangement in which two chambers formed as above are employed; the larger and more accessible of which, being the one under the pavement or side-walk of the street, it is proposed to devote to the reception of telegraph wires, while the smaller, extending under the roadway, will contain the gas and water-pipes. It is proposed to construct the iron compartments so as to allow of the upper surface of the key-plate and the other shutter-plates or frames being brought flush with the pavement; and, in fact, it is proposed that this part of the structure shall form the kerb of the roadway. For the purpose of strengthening it and protecting it from the carriage traffic, a strong rib or protecting piece is to be cast along the outer edge. The two chambers may be cast in one piece, in suitable lengths, or separately, and secured to each other by bolts or otherwise. If the gas and water pipes are placed as proposed in the gallery or chamber furthest from the houses, then short traverse ways or spaces must be reserved and taken out of the other chamber, in order to enable the supply-pipes for the houses to be passed through. The spaces for these supply-pipes must be boxed round and covered in, to protect them from injury when workmen are employed in the chamber, and as the supply-pipes will pass immediately below the longitudinal opening that is covered in by the removable shutters or plates, the pipes may at that spot be provided with cocks for the purpose of cutting off the supply to the houses when required.

On the top of the smaller and outermost gallery or chamber is to be placed the gutter-plate, and also such part of the roadway as will be contiguous thereto; and if it is desired or considered necessary, the top plate of this gallery may be strengthened by internal struts and supports, so as to render it strong enough to sustain the weight and concussion of any heavy carriages that may pass over it.

The claim is for constructing such underground chambers of cast iron or other suitable material, as above set forth, and arranging such underground chambers as herein shown and described, so that access may be obtained to the interior without interfering with or deranging the roadway.

2272.—William Johnston, merchant, and William Ross, brassfounder, both of Glasgow, N. B., for "*Improvements in water-closets and taps or valves.*" Patent dated Oct. 12, 1858.

This invention comprises various improvements in the valvular mechanism of water-closets and in taps or valves, the whole having reference to improved modes or means of controlling or regulating the passage or flow of fluids. A portion of the improvements in the valvular mechanism of water-closets is more particularly designed to render the apparatus

self-acting. In water-closets so constructed the pan or valve which closes the outlet of the basin or primary receptacle, being mounted on a horizontal spindle at one side in the usual way, is balanced by means of a counter-weight, in such a way that the weight of water which it contains when shut will open it on the spindle being released from a catch contrived to hold it shut; the counter-weight, however, being made sufficient to close it again after the water is emptied out of it. The apparatus is set in action by a lever actuated by the depression of the seat or by the manual depression of a button or handle, the lever recovering itself after depression by the action of the counter-weight.

The invention also comprehends certain improvements in valves specially designed for controlling the exit of the water lodged by condensation in steam pipes used for heating and other purposes. According to one modification the valve, which is adapted to the bottom of a vessel provided for the reception of the water of condensation, is opened by a float made of cork, which is less liable to injury from the hot water and steam than those hitherto in use. The buoyant action of the float may be aided by a spring, or the float may be connected to a diaphragm of an impermeable flexible and elastic material, such as vulcanized caoutchouc fixed over an opening in the top of the vessel.

2312.—Joseph Pierre Gillard, of Paris, civil engineer, for "*Improvements in generating hydrogen, and in the means of, and apparatus for, applying the same to lighting and heating purposes.*" Patent dated Oct. 16, 1858.

This invention relates in great part to improvements on a patent obtained by the patentee on the 22nd of November, 1849, in which patent a description is given of apparatuses, modes of action, and the materials made use of for manufacturing hydrogen gas by the decomposition of steam.

In the present specification a description is given of improvements in the said apparatus, modes of acting, &c. The steam is obtained from any suitable boiler or generator heated by the last heat of the furnace, and in order that, by introducing this steam at once in the retorts, the heat of these latter should not be lowered too much, the steam is caused previously to entering them to pass through tubes seated in the interior of the piers or buttresses of the brickwork of the furnace, by which means this steam will become sufficiently superheated, so as not to cause the charcoal to cool too quickly, or other material with which the interior of the retorts is provided for obtaining the decomposition of the said steam. The latter is introduced into the retorts by means of tubes with perforated roses or other suitable openings, and situated in the interior of the retorts, which tubes extend over the entire length of the layer of charcoal, or other decomposing material, in the interior of the latter. An essential part of the invention consists in distributing the steam in such a manner over the decomposing material, that an equal degree of heat is kept up on its surfaces, whereby an equal decomposition of the steam evolving hydrogen will be secured, and the generating of carbonic oxide in great measure prevented. For this purpose the tubes are provided with perforated roses or other suitable openings, distributed in such a manner over the length of the tube that in the same ratio as the temperature in certain parts of the retort exceeds that of other parts in this latter, more steam will be injected on these parts than on the remainder, which regulating may be effected by increasing in these spots either the diameter or the number of the holes, slits, or other perforations through which the steam is projected on the decomposing materials. It is preferred, however, to increase the number of the perforations rather than the diameter of the surface of them, as it is desirable the steam should be injected in a very divided state.

The superheating tubes must be properly covered with fire-bricks or fire clay, so as not to be liable to injury. It is preferred to have them inserted into fire-bricks suitably perforated for this purpose, so as to allow of removing the tubes therefrom without injuring the remainder of the brickwork. The injection-tubes may be of cast or sheet iron, and have properly inserted in them one, two, or more series of roses or spouts, of china or fire clay, provided with fine holes for the steam to be projected through. The openings of these holes or perforations must, further, be in such directions as to distribute the steam as equally as possible over the surface of the decomposing material; and instead of providing the sides of the tube directed towards the decomposing material with spouts or roses, these sides themselves may be provided with proper perforations. The spouts or roses ought always to be made of china or fire clay, and properly set in the cast-iron or other tubes, so as not to allow any steam to escape through, other than the projecting holes.

Another part of these improvements consists in the general construction of the furnaces and in the manner of preserving the retorts from the destructive action of fire. For this purpose the retorts are provided over the greater part of their surface with a cover of fire-bricks. The height of the furnace is also increased, and instead of allowing the heated air at once to arise to the top of the furnace, it is caused to pass from the fire-place through the flues to the upper part of the furnace, from where the same arrives by the descending flues into the horizontal flues, and finally enters the chimney. By these arrangements the retorts receive the heat all round. In the case of smaller furnaces, in which only three retorts are used, the horizontal flue is situated between the two lower retorts, and under the upper one. The same arrangement is made use of in furnaces with two retorts, with this difference only, that the arches or vaults are surbased, and not so high.

The flues ought to be constructed with fire-bricks in such form as to fit perfectly into and overlap each other, and have their joints exactly filled up. These flues collect together at the back end of the furnace into an ordinary shaft, and they are provided with proper dampers for regulating the draught. In furnaces with five retorts, the two descending flues are separated from each other by a partition of fire-bricks.

As the evolution of the gas in the retorts takes place with great rapidity, another part of this invention relates to the arrangements of the gasholder for keeping up the pressure in the retorts between certain limits, so as to prevent either a partial vacuum or an over-pressure taking place in the interior of them. For this purpose a regulator or small gasometer is connected on one side with the gas arriving from the retorts, and on the other side with the gas going towards the purifiers and gasholders, which regulator causes the pressure in the interior of the retorts to be kept up between proper limits.

Another part of this invention relates to an improved purifier, which is composed of two compartments or separate purifiers, in which the gas is purified by passing through each of them from the bottom towards the top. Each compartment is provided with four perforated iron plates forming trays, on the top of which is spread out a layer of hydrated lime, of about four inches in depth, which the gases evolved in the retorts have to pass through during their ascent in the purifier, whereby the carbonic acid combined with the lime will form carbonate of lime, while the hydrogen mixed with the small quantities of carbonic oxides which might have been evolved in the retorts, pursues its course towards the gasholders. The purifier is provided with a lid, the rim of which enters into a hydraulic joint provided round the top of the apparatus. The underside of this lid is further provided with a vertical plate entering also into the hydraulic joint forming the top of the side, by which arrangement the apparatus is divided into two separate purifiers. This side does not extend entirely to the bottom of the apparatus, but a sufficient opening is left, and also one between the opposite side of the purifier and the outside casing of the apparatus, so as to allow the gas after having passed through the trays of the purifier to strike through the open space, and from there to ascend again through the trays of the purifier, from the top of which it passes through the openings and leaves the apparatus by the exit tube, in order either to enter into other purifying apparatuses or into gasholders. A concave form to the outside casing of the apparatus and purifier is preferred.

Another part of this invention relates to an improved method of purifying the gas evolved in the retorts. For this purpose a mixture of carbonate of soda and hydrated lime or lime-water is used. The carbonate of soda is transformed by the carbonic acid of the gas into bi-carbonate of soda, which by being submitted to a degree of heat sufficient to expel one equivalent of carbonic acid becomes again carbonate of soda. By this means the same quantity of carbonate of soda, or nearly so, may be used over and over again for the purification of the gas. This transforming of the bi-carbonate of soda into carbonate may be effected by the last heat of the furnace. It will be useful after the gas has been purified in this manner, to cause the same to pass through one or more purifiers provided with lime only, in order to prevent the gas carrying particles of soda with it.

Another mode of purifying consists in causing the gas to pass through a solution of tribasic acetate of lead, which latter may be obtained by dissolving litharge in acetic acid so that the solution makes 18° B. The apparatus made use of for this purpose consists of a vessel provided with a lid with hydraulic joint. In this vessel the solution of acetate of lead is introduced by a tube with cock in the vessel. The gas passing through the solution is deprived of its carbonic acid, and this latter combining with the oxide of lead forms carbonate of lead, whereas the acetic acid is set free and precipitated at the bottom of the solution, from whence it may be drawn off by a tap, and may serve for dissolving fresh quantities of litharge. In this mode the same quantity of acetic acid may be used over and over again with only a small loss.

Another part of this invention consists in an improved mode for increasing or decreasing with facility the pressure in gasholders. For this purpose the top of the bell of the gasholder is provided with a vessel which is to be filled more or less with water, according to the pressure required. The vessel may be formed simply by putting a rim round the top of the bell, so as to form thereon a reservoir of the required bulk to hold the water, by means of the weight of which the bell may be caused to dip, more or less, according to the pressure with which the gas requires to be issued from the gasholder, and by which method the pressure may consequently be regulated with the utmost nicety and facility.

Another part of this invention relates to certain improvements in the burners and other apparatus for applying the hydrogen gas obtained by the method described, to lighting or other purposes. Having observed that the ordinary iron ring of the argand burner became very soon deteriorated, the patentee proposes to replace this ring of iron by one of platinum or platinated irridium, or other suitable unoxidizable metal. He has further found by experience that the diameter of the air-tube, the circle of holes or perforations through which the gas issues, and the breadth of the ring must be in a proper ratio to each other. Thus, for instance, the 20-holes, the 16-holes, and the 12-holes burners ought to have the diameters of their air-tubes respectively about 8-10ths, 6-10ths, and 5-10ths of an inch; the diameter of the circle of holes about 1 inch, 8-10ths of an inch, and 6-10ths of an inch; and the breadth of the hole-plates about 20-100ths, 16-100ths, and 12-100ths of an inch. The height of the burners must be about 8-10ths of an inch, the diameter of the holes about 1-100th of an inch, and they require to be at about 16-100ths of an inch distance from each other. In general, argand burners are preferable to batswings or other burners. It is also proposed to use burners of china or of crystal, which latter particularly offer the great advantage of projecting less shade than the ordinary brass burners. Another description of burner consists of a small burner, in the top of which are inserted a series of very fine tubes, from which the gas issues.

Another part of this invention relates to platina wicks or wire-work for imparting luminousness to the hydrogen flame. It is proposed to make these wicks of an alloy of platinum and irridium, which is less liable to become injured by the action of the flame than the common wicks of platinum. Instead of irridium, any other suitable unoxidizable metal may be alloyed with the platinum. A concave form is given to the wicks (instead of a cylindrical form as hitherto made use of), so as to give to the diameter at the top of the wick about 12-100ths of an inch more than at the base, and make the first one correspond nearly with the diameter of the circle of the holes of the burners. The height of the wick ought to be from 7-10ths to 8-10ths of an inch. The wicks may, however, have any suitable form—say, for instance, round, oval, flat, or other—though the patentee prefers the round concave form. The wires of the wire-work must be laid in a slanting instead of in the vertical direction, as was done hitherto.

The hydrogen gas made by this process being very pure, may be applied to any domestic culinary or industrial heating purpose, such, for instance, as the heating of rooms, churches, or other confined spaces; for cooking, for soldering, for ironing, or similar purposes. The patentee says he can impart to his gas, which is without smell, any odour that might be re-

quired, either at the gasometer or the pipes in the house of those requiring it.

The claims are for—

1. The mode of superheating the steam before injecting the same in the decomposing retorts.
2. The mode described for duly regulating the injection of the steam on the decomposing material in the retorts, and the arrangement of the injecting tubes.
3. The general arrangement of the furnace and the superheating tubes, and the mode of setting the retorts so as to preserve them from the direct action of the flame.
4. The arrangement of the exhauster or aspirator in combination with the regulators for keeping the pressure in the retorts within any required limits.
5. The arrangements and mode of acting of the improved purifiers.
6. The improved modes of purifying the hydrogen gas manufactured by this process.
7. The mode described for regulating the pressure of the gasholders.
8. The mode described in the construction of burners and wicks.

2332.—Alexander Allan, engineer, Thomas Whimster, gas engineer, and Robert Gray, gas inspector, all of Perth, N.B., for "*Improvements in steam boilers, also applicable in part to gas-meters, lamps, and lubricating and other apparatus requiring a constant liquid level, and in part to pressure indicating apparatus.*" Patent dated Oct. 19, 1858.

This invention comprises improvements designed for the obtaining of a constant or nearly constant water-level in steam boilers, and is also applicable in more or less modified forms in part for maintaining a constant liquid level in various apparatus, such as gas-meters, lamps, lubricating and evaporating apparatus, and in part for indicating pressure.

In a steam boiler, according to this invention, the feed-water is contained in a closed fountain or reservoir, from the bottom of which a pipe or passage conveys the water into the boiler, at a point by preference near the bottom of the latter. A pipe or passage communicating with the steam space of the boiler enters the fountain, and dips down to the level of, or to a point corresponding to, the level at which the water is to be maintained in the boiler. These two pipes or passages are controlled by valves, and a third pipe or passage, also controlled by a valve, is provided for refilling the fountain with water when it becomes empty, and the three pipes may be connected for the convenience of actuating them all simultaneously by means of a single handle. As long as the water in the boiler does not descend below the level, the water above the mouth of the dip-pipe in the fountain is held suspended as it were, the steam being unable to change places with it on account of the hydrostatic balance of the water and the steam. But, on the water in the boiler descending slightly below the proper level, the steam descends correspondingly in the portion of the dip-pipe in the fountain, and, escaping at the mouth of the dip-pipe, rises in bubbles to the surface of the water in the fountain; the water is displaced by its flowing thence by the pipe at the bottom of the reservoir into the boiler. On the water in the boiler recovering its proper level, the water in the fountain becomes again suspended, and the flow to the boiler is stopped. In practice, as long as the boiler contains sufficient water, the feeding action will be nearly, if not quite, continuous. The water in the boiler will be maintained at a level slightly below the mouth of the dip-pipe in the fountain, which will cause such a continuous stream of steam or steam bubbles to flow into the fountain as will displace the water therein, and allow it to flow into the boiler at the exact rate at which the water in the boiler is evaporated.

When the water in the fountain descends as low as the mouth of the dip-pipe, the valve handle must be shifted so as to close the valves connected with the boiler, and open a valve communicating with a tank or well. The steam in the fountain will rapidly condense, and a further supply of water will enter the fountain by atmospheric or other pressure. The valve handle may then be shifted back, so as to place the fountain in communication with the boiler, when the feeding operation will proceed as before. The fountain may be of various forms and proportions, but it must be constructed to bear the same pressure as the boiler, whilst its position is determined by the water-level, as the mouth of the dip-pipe must coincide, or nearly coincide, with that level. The drawings show various modifications of these arrangements, in one of which two fountains are employed.

In order that the attendant may know which fountain is in operation or in connexion with the boiler, and if the whole apparatus is working satisfactorily, each fountain is provided with a pressure-gauge or gauges, constructed by preference as follows:—The gauge consists according to one modification of two glass tubes fitting into a horizontal tube or vessel, and contains an elastic fluid, such as air, and a liquid, such as water or mercury, and it is by the space occupied by the air that the pressure is indicated. The steam or other elastic fluid, the pressure of which is to be indicated, communicates directly, or by means of an intermediate fluid, with the upper end of one of the tubes; this communication being by preference from below through a small tube passing centrally up the glass tube. The pressure acting upon one tube forces the liquid up the other tube, compressing the air in the latter. A graduated scale is marked on or placed against the tube, and shows the pressure corresponding to any level to which the liquid is raised. If the fluid pressure in the fountain or vessel communicating with the gauge is less than that of the atmosphere, the air in the further tube expands and forces the liquid up the nearer tube, which last has likewise a graduated tube adapted to it, and shows the intensity of the vacuum, or the pressure below the atmosphere. A marked distinction is thus made between the range of pressure above the atmosphere and the range of pressure below the atmosphere, although both are indicated by the same instrument; and a glance at the two fountains will inform the attendant of the condition of each in such a way that he can scarcely make a mistake. This gauge may be modified in various ways provided its essential feature is retained, of indicating pressure by the more or less expanded or compressed condition of the air or æriform fluid contained therein. Another important feature of this gauge, when atmospheric air is contained in it, consists in the facility with which the air may be renewed at any moment, the gauge being easily contrived so that the proper quantity of air may be at any time tested or re-measured into it. With the view of rendering the scale divisions more convenient the tubes may be made of differential calibre, or a solid or hollow body of a suitable shape may be inserted in a cylindrical or other glass tube; or again, a small cylindrical glass tube may be used to show the indications; this tube being in communication with another passage or chamber shaped with a differential calibre to correspond with the proposed divisions of the scale. It is not essential to make the entire tube or gauge chamber of glass, as a glass slot or opening will be sufficient to see the indications through.

The improved pressure-gauges just described, or modifications of them, may be used or applied for indicating pressure in closed vessels of any kind. Where only pressure above the atmosphere is to be indicated, a single tube may be used, and if desired, a single tube may be arranged to indicate pressures either above or below the atmosphere by suitably proportioning the ærial and liquid contents.

A modification of the "deep-dip fountain" is advantageously applicable to wet gas-meters. In this case the fountain consists of a chamber formed against the drum-case, so as to contain water above the level at which the water is to be maintained, and communicating with the interior of the meter by a pipe or passage below that level. A dip-pipe or passage communicates with the gas space above the water-line, and by preference above the top of the fountain, and dips inside the fountain down to about the level at which the water is to be maintained in the meter. The float for closing the inlet-valve is by preference placed in the fountain, and the valve-spindle is passed down a tube, which may be made to act as a dip-tube either alone or in addition to another dip-tube communicating with the inside of the drum-case. The action is the same as that of the apparatus described as applied to a steam boiler, and it will be obvious that the water-level can be adjusted with the greatest nicety by lengthening or shortening the dip-tube or passages.

In constructing gas-meters with this dip-pipe fountain, some minor improvements conducive to the same end are combined. In one modification the entrance-pipe communicates by means of a species of rose, contrived to prevent the introduction of fraudulent instruments, with a valve-box opening into a larger rectangular chamber upon the front of the drum-case. This last chamber is divided by partitions into the fountain, the middle chamber (communicating with the interior of the drum-case by the usual openings), and the waste-water chambers. The gas has access from the valve-box to a passage forming part of the middle chamber, and proceeds down a pipe answering also as the overflow-pipe into the waste-water chamber, whence it enters the measuring-drum by means of a pipe. The fountain chamber extends considerably above the proper surface-line of the water in the drum-case, so as to contain water for maintaining that level. It communicates with the middle chamber, and consequently with the interior of the drum-case, by a passage which is bushed with block tin to avoid its being obstructed by the oxidation of the iron edges of the hole.

The fountain communicates with the gas space in the drum-case at a point above the top of the fountain by the dip-pipe, the lower mouth of which dips in the fountain down to a proper level. The float for stopping the ingress of the gas when there is not enough water in the meter, is by a valve which governs the aperture between the valve-box and the passage which forms part of the middle chamber, and is placed in the fountain directly below the valve-box, the valve-spindle passing up from it through a tube, which descends in the fountain to about the same level as the lower mouth of the dip-pipe, and which may serve as a dip-pipe. This tube also serves as a guide for the float, which is made with a square eye to prevent its turning, whilst the tube is made with concave sides, to allow the gas to pass from its mouth, up outside it, through the eye of the float. The float is arranged to close the valve before the water in the fountain is emptied, quite down to the before-mentioned level, so that the gas is shut off before the surface of the water in the drum-case can possibly descend below that level. The manner in which the fountain, so long as it is full enough, supplies the water to make up for any deficiency in the drum-case arising from evaporation or otherwise, is precisely the same as the mode of operation described in connexion with the improved boiler-feeding apparatus.

In order to hold the water in suspension in the gas-meter fountain when the latter is being refilled, and also to prevent the escape of the gas that may be above the water in the fountain, the filling-tube is made to dip in the fountain below that level, and a pipe is provided for transferring the gas in the fountain back into the drum-case, this pipe opening into the fountain near the top, and into the drum-case at a point below the level. When the fountain is being refilled, the pressure of the entering water will force the gas in the fountain thence by the pipe into the drum-case. The dip of this pipe below the water in the drum-case prevents the gas from passing by it from the drum-case into the fountain.

In the second modification the middle chamber is dispensed with, the fountain chamber being extended down below the level of the drum-spindle, which projects into it. This chamber communicates directly with the drum-case, as before described, and the passage communicating with the waste-water chamber and the overflow-pipe communicates directly with the drum-case, the overflow taking place from it into the passage before described, instead of going into it as in the first modification. The tube through which the inlet-valve spindle passes, acts as the sole dip-pipe for the entrance of gas into the fountain to release the water wanted to make up the level in the drum-case. An additional dip-pipe may, however, be introduced if required.

It will be observed that in both modifications of gas-meter the overflow-pipe is placed as forward as possible, so that if the meter is tilted forward the water will immediately overflow, and shortly stop the passage of the gas by filling the waste-water chamber. Besides which, the dip-pipe being behind the overflow-pipe, the water will flow out of the fountain also, and cause the inlet-valve to close. The waste-water chamber is separated from the waste outlet-chamber by a partition descending nearly to the bottom, and the passage of the gas under it is prevented by the waste water. To make sure of the communication being sealed under all circumstances, the partition may be bent, or it may be made to dip down into a cavity as indicated in the drawings, or the communication may be by a bent pipe. The waste-water outlet-tube is also prolonged internally

for the same purpose. (The specification describes the application of the dip-pipe fountain to open vessels, such as evaporating pans, domestic boilers, lamps, lubricating vessels, &c.)

The claims are—

1. For the several combinations of apparatus described, taking each combination as a whole.

2. The system or mode of maintaining a constant or nearly constant liquid level in close vessels by means of fountains such as described, and of which the distinguishing feature is the application to them of pipes or passages communicating with spaces above the liquid surfaces to be maintained, and dipping down in the fountain to a corresponding level.

3. The system or mode of maintaining a constant or nearly constant liquid level in open vessels by means of fountains as described, and in which pipes or passages communicating with the atmosphere dip down in the fountain to the level corresponding to that at which the liquid is to be maintained.

4. The arranging and constructing gas-meters so that almost the entire rectangular chamber in front above the waste-water chamber forms the fountain chamber as described and explained in the drawings.

5. The placing of the mouth of the overflow-pipe in gas-meters fitted with fountains in front of the mouth of the dip-pipe, to ensure the emptying of the fountain and closing of the inlet-valve when the meter is tilted forward.

6. The arranging of the valve-box and fountain of the gas-meter so that the float may be placed directly below the inlet-valve and act directly upon it as delineated and described.

7. The hereinbefore-described modifications of pressure-gauges (for pressures either above or below, or both above and below the atmosphere), and the application and use in such gauges of an elastic fluid, such as air in combination with a liquid such as water specifically as hereinbefore described.

8. The arranging and constructing air pressure-gauges, so that the volume or quantity of air used in them may be re-measured or tested with facility at any time specifically, as hereinbefore described.

2356.—Richard Archibald Brooman, of 166, Fleet Street, London, for "*Improvements in apparatus for regulating the supply of fluids.*" A communication. Provisional protection only obtained. Dated Oct. 21, 1858.

This invention relates to cocks or valves for supplying water, steam, or other fluids to cylinders, gauges, pipes, and other vessels from which it is desirable to allow the contained fluid to escape when the supply is cut off.

The invention consists in employing an eccentric cock or valve with two or more faces, which bear alternately against vulcanized india-rubber seats, when the spindle of the eccentric is turned in such a manner that when the supply, port, or passage is opened, an escape, port, or passage is closed, and *vice versâ*. The spindle is packed with compressed india-rubber, and the cock or valve seats, together with the packings of all other outlets and inlets to the body of the apparatus, by preference consist of blocks of vulcanized india-rubber, compressed by bolts or screws. The spindle of the cock or valve may be turned by any suitable means, and the apparatus, constructed as before described, may be applied to gauges, water-boilers, hydraulic cranes, and for various other purposes.

2357.—Richard Archibald Brooman, of 166, Fleet Street, London, for "*Improvements in cocks, taps, and other apparatus for regulating the flow of fluids.*" A communication from P. J. Guyet, of Paris. Provisional protection only obtained. Oct. 21, 1858.

The objects of this invention are, so to construct cocks, taps, or other apparatus for regulating the flow of fluids, that their flow may be instantaneously permitted or intercepted; that the joints may be always fluid-tight; that the expansion and contraction of the apparatus from varying temperatures, changes of position, &c., may be provided for; and that certain of the parts may be permitted to incline themselves to each other without injuring the action of the apparatus; and the invention consists of certain methods of applying india-rubber in the construction of such apparatus. In fitting, for example, the feed-pipe connexions between a tender and a locomotive, two cylindrical chambers are employed, in which cylinders of vulcanized india-rubber are placed, and fixed by means of end-collars screwed to the chambers. These collars are tapering or conical and hollow for the play in all directions of a connecting piece of pipe, which slides into, and is tightly grasped by, the hollow india-rubber cylinders. The flow of fluid through the pipes is permitted or intercepted at will by eccentric or cane cocks or valves worked by spindles, which step in one side of the chambers, and pass through vulcanized india-rubber rings compressed by screw collars in the other side. A pipe connected with the upper part of the boiler passes through one of the india-rubber cylinders, and then through india-rubber packing on one side of one of the chambers, in like manner to the spindles of the cocks or valves.

PROVISIONAL PROTECTION

HAS BEEN GRANTED FOR THE UNDERMENTIONED INVENTIONS.

781.—John William Kelly, C.E., of Ennis, Clare, Ireland, for "*Improvements in gas-burners.*" March 29, 1859.

801.—William Smith, of King Street, Smithfield, London, and Edmund Smith, of Hamburg, gas-meter manufacturers, for "*Improvements in means or apparatus for the purpose of regulating the flow or passage of fluids.*" March 30, 1859.

823.—Joseph Desmet-Séaut, of Mons, Belgium, and 4, South Street, Finsbury, for "*An improved gas burning and lighting apparatus.*" April 2, 1859.

828.—Joseph Skertchly, of Ashby-de-la-Zouch, in the co. of Leicester, engineer, for "*Improvements in apparatus for regulating the pressure of gas.*" April 2, 1859.

853.—George Frederick Chantrell, of Liverpool, furnace engineer, and Edward Dutch, of the same place, for "*Improvements in the apparatus for regulating the quantity of water to be used for the flushing of water-closets and other purposes.*" April 5, 1859.

878.—Marc Antoine François Mennons, of 39, Rue de l'Échiquier, Paris, for "*An improved articulated joint for water, gas, and steam pipes.*" A communication. April 8, 1859.

912.—Patrick Aitchison, brassfounder, Sheffield, for "*Improvements in taps.*" April 12, 1859.

NOTICES HAVE BEEN GIVEN OF INTENTION TO PROCEED WITH THE UNDERMENTIONED INVENTIONS.

2745.—Frederick Warner, of Jewin Street, London, John Derbyshire, of Longton, Stafford, and Alexander Mann, of Little Britain, London, for "*An improvement in the manufacture of cocks or taps.*" Dec. 2, 1858.

2765.—Samuel Peters, of 12, Rue de la Briche, St Denis, near Paris, mechanic, for "*Improvements in the manufacture of pipes and tubes, and in the apparatus employed therein.*"

2807.—Stephen William Pugh, of Nelson Square, Commercial Road, New Peckham, for "*Improvements in obtaining and purifying naphtha, paraffine, and other oils, and also spirits.*" Dec. 7, 1858.

2811.—Charles de Capot and Alexandre Jarriant, of 10, Rue de la Révolte, Neuilly-sur-Seine, C.E., for "*A new hydraulic counter.*" Dec. 8, 1858.

2820.—John Barrow, jun., of Manchester, manufacturing chemist, for "*Improvements in the treatment of coal gas tar and of the oils obtained by the distillation of the same, and for the application of substances obtained thereby.*" Dec. 9, 1858.

2843.—Stephen Dudgeon, of Sheffield, for "*An improved gas-regulator.*" Dec. 11, 1858.

55.—George Kennedy Geyelin, C.E., London, for "*Regulating gas-burners, which he calls the 'Universal Gas-Burners Regulator.'*" Jan. 7, 1859.

80.—Charles Middleton Kernot, of Gloucester House, West Cowes, Isle of Wight, doctor of medicine, &c. &c., for "*Improvements in purifying and decolorizing paraffine, and rendering the same white, hard, and sweet.*" Jan. 11, 1859.

Legal Intelligence.

VICE-CHANCELLOR'S COURT.

Monday, March 28.

(*Before Vice-Chancellor* Wood.)

SHIPLEY *v.* RICHARDS.

Mr. Rolt, Q.C. (with whom was Mr. Fooks), moved for an injunction to restrain the Local Board of Health of the town of Croydon from permitting any sewerage matter to flow from the district under the control of the board into the river Wandle, or any of its tributaries, by means whereof the river, where it passed through the property of the plaintiffs at Carshalton, might be tainted or polluted, so as injuriously to affect or prejudice the plaintiffs or their tenants in the use and enjoyment of the water of the river, and of their property.

Mr. Willcock, who appeared for the defendants, said they were exceedingly anxious to remove all ground of complaint, and asked that the motion might stand over to see whether the board could not satisfy the plaintiffs by experiments made in the meantime. The defendants hoped to be able to do something before next term which would satisfy the court that there was nothing to complain of.

Mr. Rolt said the plaintiff would be too happpy to find the defendants able to remove the nuisance; and, therefore, the convenient course would be that the plaintiffs took the injunction they asked, and that there should be liberty to the defendants to apply.

Mr. Willcock declined this course.

Mr. Rolt then said he should satisfy the court that it was a clear case of nuisance which ought to be restrained. There was scientific evidence on both sides; but the practical result was that the nuisance existed beyond a doubt. Shipley House, occupied by the plaintiff, was close to the Wandle, and the fishing was let at £55 a year. The injury complained of was, therefore, injury to health and comfort, and injury to the fishing. The learned counsel then read numerous affidavits by scientific and medical witnesses and others in support of his case.

Mr. Willcock contended that the injury suggested was exaggerated; and that so far from the water being polluted so as to injure the fishing, he had an affidavit which proved that only two days ago the trout were playing about in the stream, and had thus determined the question which scientific gentlemen might disagree upon.

The Vice-Chancellor inquired whether, if that were so, Mr. Willcock would undertake, in the words of the motion, not to do anything whereby the plaintiffs might be "injuriously affected or prejudiced."

Mr. Willcock said the board would do everything they possibly could, and would undertake to do so.

An order on the board not to do anything by which the water should become tainted or polluted so as injuriously to affect the plaintiffs or their tenants till further order, with liberty to apply, was finally agreed upon.

COURT OF QUEEN'S BENCH,

Westminster, Friday, April 15.

(*Sitting in Banco, before Lord* Campbell *and Justices* Erle, Crompton, *and* Hill.)

THE QUEEN *v.* THE BURSLEM LOCAL BOARD OF HEALTH.

Mr. Gray (with whom was Mr. M'Mahon) moved, pursuant to leave reserved, for a rule to enter the verdict for the defendants. The prosecutor, Hans Ringland, had obtained a *mandamus* to the Burslem Board of Health, commanding them to award him compensation for injuries done to his property by certain works executed by the board. A return was made to the writ, and several issues in fact raised, which were tried before Mr. Justice Crompton at the last Stafford Assizes, when the verdict was ordered to be entered for the Crown, the defendants having leave to move to enter the verdict in their favour. The prosecutor originally had demanded compensation in respect of six houses, which was refused, but between that refusal and the application to this court for the writ, he had parted with the property in four of the houses. The learned counsel contended that the prosecutor had made no demand for what he now asked—viz., compensation in respect of the two houses, and therefore he was not entitled to a peremptory *mandamus*.

Lord Campbell asked whether that would not have been a good objection to granting the writ, and whether the objection had been taken?

Mr. Gray said, he did not appear for those parties on that occasion. The prosecutor must make a claim of a specific amount, because upon the amount of the claim it must depend whether the compensation should be awarded by magistrates or in some other manner.

The court granted a rule *nisi*.

ESSEX SPRING ASSIZES.

CHELMSFORD, MARCH 10.

(*Before Mr. Baron* MARTIN.)

THE QUEEN *v.* COLLIER AND OTHERS.

This was a prosecution for an alleged nuisance in the parishes of Romford and Dagenham.

Mr. HAWKINS, Q.C., and Mr. WOOLLETT appeared for the prosecution; Mr. BOVILL, Q.C., and Mr. GARTH were for the defendants.

Mr. HAWKINS, in stating the case, said the indictment was laid for the purpose of putting an end to what the inhabitants of the parish of Dagenham had long felt to be an intolerable nuisance. There was no question, he believed, as to the nuisance, and the only point in dispute was whether the defendants were the parties liable. The defendants were members of the Romford Local Board of Health, and they were charged with having polluted a stream called the River Rom, which passes through Romford, on to Dagenham, towards the Thames. A nuisance had been created by the whole of the sewerage of the town of Romford being discharged into this stream, above the village of Dagenham. And this, for the last six or seven years, had gradually increased until last year it was so intolerable that it was found necessary to institute the present proceedings, with a view to suppressing the nuisance. By the 11th and 12th Victoria, chap. 63, called the Public Health Act, and which was applied to Romford in 1851, the Local Board of Health have vested in them the sewers of the district; and by a section of that Act it was directed that the sewers should be so constructed as not to be injurious to the health of the neighbourhood. Some years ago the stream of the Rom was in a clean and wholesome state, but since the operation of the Public Health Act in Romford, the portion running through Dagenham had become sadly impure—cattle would not drink it, and the stench was so unbearable that horses had refused to cross a ford in the vicinity. Application was made to Mr. Goddard, the civil engineer, who prepared plans with a view to remedy the evil, but it so happened that there were two parties at the Local Board of Health—the one known as "the cleansing party," the other as "the dirty party"—(a laugh)—the former being anxious for the health, convenience, and comfort of the inhabitants of Romford, the latter considering that things were not so bad as they were represented, and, under these circumstances, nothing was done. After the publication of Mr. Goddard's report, Mr. Alfred Dickins, an inspector from the General Board of Health, came down to Romford, and in his report, a copy of which was sent to the local board, attention was specially called to the matter, and the hope was expressed that the local board would see the necessity of remedying the evils complained of. That was in the year 1854, but from that time to the present not a single step had been taken, nor had a shilling of expense been incurred by the local board towards providing a remedy. The present proceedings were therefore instituted, and he (Mr. Hawkins) believed that the jury would be satisfied, beyond all doubt, that this was a nuisance which, if committed by any private individual, would lead to his immediate conviction.

The learned counsel then called the following evidence:—

Henry Thompson: I am a miller, and have lived at Dagenham for the last 34 years. I live just 110 yards from the river Rom. Eight years ago the river was in a pure state; it was a capital fishing stream; I have caught bushels of fish in it. The water now is the colour of dirty milk, and the stench is so offensive that, in the summer, we are obliged to keep our windows closed. In the summer of 1854, there were 17 people, in 11 cottages, suffering from the cholera; myself and wife were so suffering, and had to leave home for a week. Last summer the river was almost unbearable at night. The smell is not so strong now, but it is still in an offensive state. My cattle won't drink the water—they won't go near it. The river above Romford is perfectly clear. Nothing but the sewers of Romford cause the dirty state. In Romford the water is black. I have made application to the local board on the subject. I have spoken to Mr. Edward Collier, the chairman of the board, one of the defendants. I have said to him that before I would sit as chairman, and poison the people of Dagenham, I would retire. He said the great firm of Ind, Coope, and Co. would not meet the board in any way, but opposed everything they did, and therefore they could not succeed in carrying out what they wished. Mr. Collier said he thought Ind, Coope, and Co. should bear their share of the cost.

Cross-examined: The Hornchurch brewery, as well as the brewery of Ind, Coope, and Co., drain into the river. Both of these are large establishments, the latter particularly so. Believed the washing of the beer-barrels, sour yeast, &c., came into the river.

Mr. BOVILL: Now was it not a particularly nasty sour smell that prevailed last summer?

Witness: It was not at all sour.

Mr. BOVILL: Was it sweet? (A laugh.)

Witness: No. The stench was like that of a cesspool.

Mr. BOVILL: Was not the river foul fifteen years before 1851?

Witness: It was not. The polluting of the stream commenced about 1851. I live five miles from Romford.

Mr. BOVILL: Are you aware of any other common sewer for all that district except this little river Rom?

Witness: I know nothing to take the sewerage of Romford away.

Re-examined: I am not aware of anything having been done by the Local Board of Health towards remedying the nuisance.

The JUDGE here expressed his opinion that the most sensible and economical way would be for the authorities to unite in remedying the evil.

Mr. BOVILL observed that the persons interested in this matter were the ratepayers of Romford.

The JUDGE: But you cannot get at the ratepayers; they are not a corporation, and the only way is to proceed against the persons who represent them. I should say that Messrs. Ind, Coope, and Co., who, it appears, send a large quantity of sewerage matter into the river, ought to do something towards putting the thing into proper order.

Mr. BOVILL: They find it impracticable.

The JUDGE: Then they should give up their business. A man has no right to carry on a trade so as to be a nuisance to his neighbours. It appears that the state of this river produced cholera in the parish. As far as possible, the river ought to be made subject to the convenience of the persons having property upon its banks.

Mr. BOVILL observed that the sewerage system of the Board of Health was a measure for preserving the public health.

The JUDGE: But in preserving the health of Romford you have no right to poison Dagenham.

Mr. HAWKINS was about to call Dr. Taylor, the eminent chemist, to speak to the state of the water, when it was admitted, on the part of the other side, that the sewerage from the town of Romford and the breweries of Ind, Coope, and Co., and the Hornchurch, caused the water of the river Rom to be foul, offensive, and noxious to the health of human beings and cattle at Dagenham.

Mr. *Thomas Bourne*, clerk to the Romford Board of Health, proved that the defendants were members of that body.

Cross-examined: For some years before the Local Board of Health was formed, the stream was a great source of annoyance, in consequence of the sewerage of the town being discharged into it. It has been a common sewer as long as I can remember.

The JUDGE: No time can legalize a nuisance.

Mr. BOVILL: But the persons to be indicted are those who cause the nuisance, not those who are anxious to get rid of it.

Cross-examination continued: Different opinions as to the mode of remedying the evil have been held in the board, the members of which were desirous of getting rid of it. No mode has yet been devised by which the sewerage of Romford can be effectually got rid of. The state of the river at Romford has been much better since 1851, when the local board was formed.

Mr. HAWKINS: Aye, you sent the nuisance down to Dagenham. (Laughter.)

The JUDGE here expressed his opinion that it would be much better for some person, in whom all parties had confidence, to act between the parish of Dagenham and the Romford Board of Health, and decide what should be done to remedy the evil. This course would save expense and litigation.

Mr. BOVILL said it was impossible for him to answer for the Local Board of Health.

The JUDGE: Then the people of Dagenham have only to press their rights to the uttermost.

Mr. BOVILL then proceeded to offer other objections to the indictment being brought against the defendants, but ultimately submitted to a verdict of guilty, leave being given to him to move the Court of Queen's Bench for the verdict to be entered for the defendants.

Verdict accordingly.

STAFFORDSHIRE SPRING ASSIZES.

STAFFORD, MARCH 12.

(*Before Mr. Justice* CROMPTON.)

THE QUEEN *v.* THE BURSLEM LOCAL BOARD OF HEALTH.

Mr. PHIPSON and Mr. H. JAMES appeared for the prosecutor, and Mr. GRAY and Mr. M'MAHON for the defendants.

This was a *mandamus* directed to the Burslem Local Board of Health commanding them to award compensation to the prosecutor, Mr. Hans Ringland, for injuries done to two houses, his property, in Adelaide Street, Burslem, by certain works executed by the board. A return had been made to the writ, and several issues raised, which now came down to be tried, after a demurrer had been determined by the Court of Queen's Bench in favour of the prosecutor. The question now was, whether the board had denied their liability, which was alleged by the prosecutor as the foundation for his writ.

It appeared from the opening of Mr. PHIPSON, who was supported by the witnesses for the prosecution, that these proceedings were taken under a writ of *mandamus* calling upon the defendants to make compensation to the prosecutor for injury done to his houses by the construction of sewers, under the powers of the Public Health Act. Mr. Ringland besides being the owner of the houses referred to, was trustee for his nephew for four other houses, situated in Waterloo Road, Burslem, which it was also declared had been injured by the works carried on by the board. The injury was done in 1857, and on discovering it, the prosecutor applied to the board for compensation. Certain members of the board, after visiting the injured houses, promised to consider the subject; but no satisfactory answer was obtained from them. In consequence of this, Mr. Ringland instructed his attorney, Mr. Lees, who wrote to Mr. Lowndes, clerk to the board, that the injury done to the houses amounted to £165, according to the certificate of an architect. Mr. Lowndes referred Mr. Lees to Mr. Challinor, solicitor to the board. Mr. Lees expressed a wish to have the matter settled under the arbitration clause of the Act, but Mr. Challinor replied that it did not come within the operation of that clause, and that the board repudiated the claim. After some further correspondence, Mr. Lees wrote to Mr. Challinor to the effect that if the board refused to nominate an arbitrator, he should apply to the Court of Queen's Bench for a writ of *mandamus*, calling upon the board to make compensation; to which, on the 17th of April, Mr. Challinor replied that he was without instructions, and that Mr. Lees must do as he thought best. Upon this, Mr. Ringland applied for and obtained a writ of *mandamus*, which set forth among other things that the board had denied, and still denied, their liability to compensate Mr. Ringland. The return made to the writ was in substance the same as the pleading in this action, but the material allegation was, that the board had never denied, and did not deny, its liability. On looking into his title, Mr. Ringland found that in point of law he was seized only of the houses in Adelaide Street, and therefore the writ and the return related only to the houses in that street. The arbitration clause of the Act set forth that full compensation should be made out of the general and special district rates to all persons sustaining damage by means of the exercise of the powers of the Act, and that in case of dispute as to the amount, the subject should be referred to an arbitrator; but that if the sum claimed did not exceed £20, it might be settled before justices in a summary manner. The 123rd section directed the manner in which the arbitration should be conducted, but this section, Mr. Phipson contended, related to cases only in which the amount was in dispute, and not to cases in which the liability was disputed. In support of this he cited *Regina v. the Metropolitan Commissioners of Sewers* (22 L. J., Q. B., 234), and *Bradby v. the Southampton Board of Health* (24 L. J., Q. B., 239).

Mr. GRAY said it seemed to him that the board had denied its liability with regard to the six houses, but not with regard to the two houses, and that no separate demand had been made on account of the two houses. In cross-examination of the witnesses for the prosecution, Mr. Gray also ascertained that the members of the board had complained to Mr. Ringland that he had made an extravagant claim, and that Mr. Lees did not appoint an arbitrator in his client's behalf.

Mr. *Lowndes*, on being called, produced the minute-books of the board, from which it appeared that the board had resolved to instruct Mr. Challinor to oppose Mr. Ringland in his attempt to get a writ of *mandamus*, and in his claim generally; and also that on the second of February this resolution was passed by the sewerage committee—"That it could not recognize this claim, nor recommend that it be entertained, inasmuch as instructions had been given to the engineers and contractors to repair damages done by the sewerage works." Mr. Lowndes also said that the board were prepared to appoint Mr. Stone their arbitrator when Mr. Lees had appointed an arbitrator on behalf of his client.

His LORDSHIP then made the following recommendation:—"That a verdict should be taken for the plaintiff, with leave to Mr. Gray to move to enter a verdict for the defendants." His lordship, however, shortly afterwards said that he made this recommendation on the understanding that the defendants went no further than the Court of Queen's Bench.

Mr. GRAY, after conferring with Mr. Challinor, said he was not at liberty to promise that.

His LORDSHIP: What a cruel oppression it is on the part of a public body of this kind! It is disgraceful to do such a thing, and I shall go on with the cause, and you must do the best you can. I have a strong opinion as to the

case, and I think it too bad. Will they consent to go no further unless the the Court of Queen's Bench has some doubt upon the subject?

Mr. GRAY said that he was not at liberty to enter into such an arrangement, and that his client wished to tender a bill of exceptions.

His LORDSHIP: The board are determined to oppress this man by carrying it into a Court of Error, and therefore we will go on with the case.

Mr. GRAY then addressed the jury on behalf of the defendants, but in a short time he was interrupted by

Mr. PHIPSON, who said that his client, notwithstanding the not very creditable conduct of the board, thought it would be better to give his friend leave to move generally.

His LORDSHIP said that, as the plaintiff was willing to take that course, he could not oppose it; and the jury, therefore, returned a verdict on the above-named terms.

MIDDLESEX QUARTER SESSIONS.

GUILDHALL, WESTMINSTER, APRIL 13.

(*Before Mr.* PASHLEY, *Q.C., Assistant Judge.*)

THE IMPERIAL GAS COMPANY, *Appellants*; THE PARISH OF PADDINGTON, *Respondents.*

This was an appeal by the company against a poor-rate of the parish of Paddington, made on the 6th of April, 1858, and was respited by consent from the February General Sessions, in order that the decision of the Court of Queen's Bench in the West Middlesex Water Company's case might be known.

Mr. BOVILL, Q.C., and Mr. BODKIN, appeared for the appellants, and Mr. DOWDESWELL and Mr. POWELL for the respondents.

Mr. BOVILL said he appeared in this case on behalf of the Imperial Gas Company, who appealed against a rate made for the relief of the poor of the parish of Paddington on the 6th of April, 1858. The assessment was made upon the pipes of the company, which were rated at the sum of £4005, and the objection to the rate was over-assessment. He would start at once by mentioning one very strong ground of objection to this rate, which was this:—For many years past, and until this rate was made, the assessment upon the same pipes and the same description of property generally was at the sum of £550. The parish, subsequently to the rate in question, had thought fit to reduce the assessment from £4005 to £3380; but the principle upon which they had assessed the pipes, both in the April rate, which was the subject of this appeal, and the October rate, when they reduced the amount, was, he believed, if not the same, at least equally objectionable. The principle upon which he understood the parish to have proceeded was to take the general receipts of the gas company in the parish of Paddington; then to make certain reductions of various descriptions, which they considered were the expenses of procuring those gas receipts; and then to regard the residue as the rent in respect of the gas-pipes on which their assessment should rest. In fact, they had proceeded upon the same principle as that adopted in railway cases—viz., to take gross receipts, and then make corresponding reductions. He (Mr. Bovill) would start by relieving his learned friend on the other side, and also the court, from the trouble of a lengthened investigation and the necessity of going through a vast variety of figures which would be involved if the question of profits were entertained, by saying that he did not intend to do so; and that, in fact, he protested against that being the correct principle of ascertaining the rateable value of gas-pipes. Not only did he protest against the question of profits being the correct principle, but he should most strenuously object to any evidence upon the subject being given on the other side. And, in order to relieve the court still further, he would say that, if profits were to be gone into—if it were ruled that that was the correct mode of ascertaining rateable value—then, though he protested against the power of the respondents to go into it, and though, even in such a case, the amount at which the company were assessed was far more than it ought to be, rather than have the investigation, he would consent, for the purposes of to-day, that it should be taken that the assessable value according to profits would be that at which the parish had rated the company. He made this offer, should it be necessary, though he did not admit that the amount was correct in point of fact—the object of his clients being to test the principle, and to have a decision upon it by the highest court of appeal. It must not, therefore, be understood that these were the profits actually realized, or that there was any admission by him except for the purposes of the day. He might mention, also, that besides the saving of the time of the court, and contending for a great principle, which would not be settled by going into minute details, there was a further objection at the present time, which of itself would be overwhelming, and that was, that at this moment a company was being formed, and which had applied to Parliament for permission to light the parish of Paddington in opposition to this company. It might be extremely convenient to those who were promoting the new company, and others who were interested in the question, to have an open investigation of the accounts of the Imperial Gas Company; and therefore upon that ground, if upon no other, the appellants would oppose any attempt to go into the matter, although they might derive a benefit by showing that, even upon this principle, they were over-rated.

Mr. DOWDESWELL said the court should be informed that Parliament had rejected the bill of the new company referred to.

The ASSISTANT JUDGE said the position of the appellants was that it might not be prudent to disclose the precise position of their affairs, although they knew that bill had been rejected.

Mr. BOVILL said the bill might be re-introduced in the next session, but whether it were so or not, it was not material to inquire. For the reasons which he had stated—viz., that it was not required by law, that the time of the court would not be profitably occupied in the investigation, and that it would be extremely injurious to the interests of this company if this investigation were gone into—he objected to that course being adopted; but it might be assumed that if the principle of taking the profits of the gas company in the parish of Paddington was to be the test, then they would not have——

The ASSISTANT JUDGE said the learned counsel had now introduced some words which made a great difference. He said, "if the profits in Paddington," &c. Now that appeared to be a very different question to the profits generally. The point was whether there were any profits made in the parish, or merely an improved value given to the land through which the mains passed. One of the learned judges of the Court of Queen's Bench had laid it down that the struggle should be in these cases to get at the gross and net receipts in each parish, and apportion the amount of gas consumed or water drunk among the various parishes supplied. But it might be that the receipts in each parish were quite immaterial, and that the question was, what is the value of the land occupied?

Mr. BOVILL said his contention would apply to both views, whether profits generally or the sale of gas in each parish were taken, and that in neither case could it be assumed as the test of rateable value. He contended that the proper mode of assessment was to ascertain in the clearest manner what a tenant would give if he required to hire pipes which were already laid down in the parish, or to ascertain what a person who was the owner of those pipes would demand as rent, or to ascertain what, if there were no pipes laid down at all, a person would be willing to lay them down for the company; or, on the other hand, what the company would think it worth their while to give for such accommodation.

The ASSISTANT JUDGE: That is the first ground upon which you may safely rest; that is the thing to be determined.

Mr. BOVILL said he would mention to the court that the case of gas-works bore no resemblance to those of a railway company.

The ASSISTANT JUDGE: Oh, no.

Mr. BOVILL said this was quite clear in many respects. In the first place, the railway was not subject to competition in any particular parish, for it rarely happened that there were two lines running through the same parish.

The ASSISTANT JUDGE thought that both might be considered liable to competition, although one was more exposed to it than the other. But in the case of gas works, a competing company would have to obtain an Act of Parliament to enable it to open the streets and lay down mains, and therefore it was not likely to come into competition so as to affect the tenant's profits in the course of the year or during the period of a rate.

Mr. DOWDESWELL said, in the case of the Imperial Gas Company, there was no competition.

The ASSISTANT JUDGE said railway and gas companies equally wanted an Act of Parliament, and therefore there could not be much competition.

Mr. BOVILL said of late years the law did not require that a gas company should have an Act of Parliament, and there were several in existence which had none; a very wholesome provision having been introduced which enabled companies, with the consent of the vestry, to lay down pipes in a parish. This was the case in the parish adjoining Paddington, that of St. George's, Hanover Square, where a company had been formed and been in operation during the last few years without the sanction of legislative enactment.

The ASSISTANT JUDGE wished the special Act or clause in an Act which enabled a gas company to break up the highways without the authority of Parliament to be pointed out. He remembered a case in the Court of Queen's Bench in which it was decided that they had no such power.

Mr. BOVILL said the 109th clause of the Metropolis Local Management Act, which had been passed subsequently, gave them authority.

The ASSISTANT JUDGE said he thought Mr. Bovill had been speaking of companies generally, instead of those only in the metropolis.

Mr. BOVILL said that clause was inserted for this obvious reason, that it was found that gas companies entered into competition with great advantage to the parishes, and it was considered that the vestries of those parishes were the bodies to whom it might be safely trusted to decide whether such competition should be allowed. The present state of the law, then, in the metropolitan district was that, with the consent of the vestry, any new company might enter with their pipes and supply the inhabitants of the parish with gas; and thus the original companies supplying the various districts were exposed to the same competition as any other traders.

The ASSISTANT JUDGE said no doubt the metropolitan companies were more open to experience the effects of competition than those in the country.

Mr. BODKIN said there were cases in which the mains of two companies were laid side by side, and the consumers took which they thought best.

Mr. BOVILL: That was the case in the City of London, where a consumers' company was introduced some time ago.

The ASSISTANT JUDGE: But the effect there was to reduce the price of gas from 5s. to 4s., which was not an inconvenience to the public.

Mr. BOVILL said what he was interested to show was, that by the course of events there had ceased to be a monopoly by reason of there being but one set of pipes in the ground. In the parish of Pancras, which also adjoined Paddington, it so happened that the London Company had pipes along the same highways as the Imperial; and to show that the receipts from gas supplied could not be the test of the value of the pipes, there was the strongest possible proof in this instance, from the circumstance that while the Imperial Company obtained the supply of the largest quantity of gas in the parish of St. Pancras, and realized a handsome profit, the London Company, so far from obtaining advantages, were obliged to work at a loss. Their pipes lying side by side with the Imperial Company's produced no profit, and in the end they abandoned their works altogether in that parish, leaving their mains, as at the present moment they remained, applicable to any purpose for which any person might be willing to hire them. Nothing could show more strongly the importance of the question now raised before the court than this fact of two sets of pipes side by side in one parish, the one yielding a profit, and the other only a loss.

The ASSISTANT JUDGE: Through that part of their works—I presume this company is not extinct?

Mr. BOVILL: They are not; but I believe they have paid no dividend for some years.

Mr. PASHLEY: Then I presume this is one of the new competing companies?

Mr. BOVILL: I do not know whether you would call it new when it has been established twenty-five years, but it cannot compete with the skill and management of the Imperial Company, The consequence is, that while one company, by attention, good management, and economy, realizes profits, another company, occupying the same ground, and to the same extent, makes a loss.

The ASSISTANT JUDGE: Just as one farmer makes £20,000 by his land, and his neighbour loses the same amount.

Mr. BOVILL said gas companies were manufacturers of gas, and had been treated as manufacturers in the courts of law from the time when they were first started. It depended therefore upon the goodness of the article they manufactured, the economy with which it was produced, and the liberality of the company in their dealings with the public, what, under the circumstances to which he had referred, was the extent of the connexion they were able to establish. He had felt it right to call attention to what might happen, and what did sometimes happen, with respect to the pipes of rival companies, and what had actually taken place in an adjoining parish. There did not exist that competition at the present time in Paddington, but there was a company forming to supply gas there, and therefore it might be the case here also to-morrow, or at the end of the year.

The ASSISTANT JUDGE: There may be a company there to-morrow which may make a good dividend or a bad one.

Mr. BOVILL said, Just so—yet their pipes would be precisely the same; although if the argument in reference to profits held good, they would be assessed at a different amount to the present appellants. The question, however, really was, what would persons laying down such pipes be willing to let them for; or what would any company be willing to give for them.

The ASSISTANT JUDGE: That is clear; and the only question is as to the mode of ascertaining that.

Mr. BOVILL said he would put one other case,—the case of two tradesmen with houses adjoining one another, of precisely the same attractions, and with the same advantages outwardly in all respects. One tradesman, by attention and diligence in business, by the superiority of his goods, and by the economy which he practised, would realize a large fortune, while his neighbour, from circumstances, or from being ill adapted to the trade, could realize nothing. Take the case of Howell and James's large establishment in Regent Street, where, perhaps, large profits were realized; it might be that in the house immediately adjoining no profits were made at all, the premises being in all respects the same. In estimating the rateable value, the principle of taking profits could not be entertained in such a case.

The ASSISTANT JUDGE suggested a case which was even stronger,—that of two similar sets of chambers in the same building, the one occupied by the Attorney-General, and the other by a young gentleman who, though "plucked" at Cambridge, was able to go through the very slight examination which took place prior to being called to the bar. The accommodation which both parties enjoyed was very similar, but the profits of the Attorney-General would be very different.

Mr. BOVILL said this only showed in still clearer light that the profits which might be realized by carrying on a profession or business had nothing to do with the value of premises for the purpose of rating. The profits of a trade were a very important element when they came to consider the value of premises with the goodwill attached, but that was not an element which could enter into this calculation.

The ASSISTANT JUDGE: Before you proceed further, allow me to ask what you consider "rent" to be? I am asking for a general principle—not what is the rent of chambers in the Temple, or of a mill or farm.

Mr. BOVILL: If I am to define it according to the principles of political economists, I shall perhaps enter into a disquisition which will not be convenient for the purpose of my argument, and which will not assist the court.

The ASSISTANT JUDGE: I would suggest—Is not rent the sum which for any given occupation (say of land, which we are now speaking of under the statute of Elizabeth) a tenant is willing to give after receiving two things himself—viz., ample remuneration for his own skill and labour in carrying on his business, according to the nature of the work or manufacture carried on; and, secondly, a certain amount of interest for the capital which he invests in the concern? Any rational being entering upon the occupation of land would consider, roughly perhaps, these two things, and after providing for them he would say, that will leave so much surplus, which is what I can afford to give for rent. Is not rent necessarily and always, however you may define it otherwise, the sum which remains in the hands of the tenant at the end of his year's occupation, after remunerating himself for skill, labour, and capital invested in the undertaking? It is not exactly considered in that way, perhaps, by an ignorant country farmer, but it comes to the same thing, for he calculates that his land is worth so much per acre, depending upon its yielding him so much a year. I throw this out because I know of no other mode of getting at the measure of the value of land, and it occurs to me that there is a great difficulty if you go to analyze anything short of that. Take the case of a farm: some person may say it is worth £1 an acre; but I say, "No; I will show you that it will only produce so much, and that the result will be that I shall only have so much per annum. Then there is so much capital required, and so many expenses incurred, and therefore the tenant cannot afford to give more than 10s. an acre." It seems to me, having considered the subject a great deal at various periods of my life, that this is perfectly consistent with all that has ever been said upon the subject, and with all the cases.

Mr. BOVILL was much obliged to the learned judge for calling attention to the view which had occurred to him. With all deference, he thought it would be found that any definition, or attempted definition, would involve them in considerable difficulty when they came to apply it to practical purposes. The fallacy of adopting any principle laid down by political economists, such as that just enunciated, would be seen in a moment. It might be, in some instances, a convenient mode of ascertaining the value of land and what it would produce, and so, after proper allowances had been made for skill, and labour, and capital, what it would be worth while for a tenant to give; but that definition, or attempted definition, would involve an absolute fallacy the moment they introduced into the consideration the element of a trade being carried on upon the premises, and which was not dependent upon the occupation of the land. In such a case, the definition and its application must necessarily fail. For instance, take the case of the eminent lawyer and the young gentleman to whom reference had been made by the bench—Mr. Briefless, in the Temple. The occupation of the premises had no connexion, or a very slight connexion indeed, with the profession carried on; and, if it was required to know the annual value of the chambers, neither the capital invested nor the skill and labour involved in the practice of either party would be taken into account. It would be practically impossible to arrive at "rent" upon such a principle. And it must fail for the simple reason that the element in the calculation, and which had to be considered, was one arising from professional skill, and from other circumstances which had no connexion with rent at all. It would be a most fallacious principle first to mix up a large element which had nothing to do with the calculation, and then make some attempt to eliminate it. And the remark was equally applicable to the case of a trade. Take the instance to which he had referred, that of two rival traders in houses adjoining one another. How could the profits of trade, after assuming what might be called a fair average return for capital, and allowing for expenses, &c., tell any one what was the value of the houses in which the trades were carried on? Supposing that Messrs. Howell and James made £10,000 a year, and the person occupying as large a house adjoining them, with equal conveniences and with equal advantages except what arose from difference of skill in the tenants, made only £1000. How was it possible to make allowances for skill, or how was it possible to apply any such abstract principle of political economy to a case where rent was concerned? The case might be carried further, and it might be assumed that there were the same number of partners in each concern—that they employed the same number of clerks; but what had all this got to do with rent? The fallacy was that an element was introduced into the receipts which had no reference to the value of the premises at all. And to prove this, one had only to refer to the next stage in the process, which was to suppose that Howell and James transferred their trade to the next house, in which their opponents in business had failed to carry on their concerns with success. What would be the result? Why they would make precisely the same profits that they had done in the adjoining premises, profit depending not upon the premises, but upon their individual exertions, their skill, and their industry.

The ASSISTANT JUDGE: Take the case of a medical man of high eminence who changes his residence from No. 84, and removes over the way. His income has no connexion with his house.

Mr. BOVILL: None whatever. That was one reason why he did not answer the question with respect to the definition of "rent," because, like many definitions of abstract principles, they might sound very well, but, when brought to the test of practice, did not apply to the case under discussion. In the case of mere land, an attempted definition was usually made, and in some cases it might be the means of ascertaining what a person would give, because it was known what the land would produce.

The ASSISTANT JUDGE: But even in respect of land—say in 1859—it is not the land merely, because throughout the country land has been greatly improved by draining and fencing. Therefore, upon the whole, the basis of rent would be upon the improved value of the land.

Mr. BOVILL repeated that, though the writers on political economy had attempted to give certain definitions for the purpose of assisting people in arriving at the truth, they all failed when they came to be applied to the case of a trade; and often those principles which were useful enough for the purposes of science, were utterly valueless for all other purposes. It might be that some principle of that sort would present an approximate means of arriving at the rent of land where there was no better guide to be obtained, but in its application to a trade it must be fallacious altogether, because, in reference to the house in which profits were produced, they did not arise from the mere occupation, but from the trade itself, which might be carried on elsewhere.

The ASSISTANT JUDGE: In the case of a railway it arises from the traction along the iron road and the action of steam in the iron cylinder.

Mr. BOVILL said in that case it arose more from the use of the land, but there was no manufacture.

The ASSISTANT JUDGE: The principle must be the same in all; there cannot be two principles upon which the same thing is to be done.

Mr. BOVILL said the principle might be the same, but the mode in which it was ascertained must be different in every case. But he would say, without fear of contradiction, that the mode of assessment of railways was not a principle at all, but a method adopted as the only practicable one from the difficulties in which the case was involved. The subject had baffled every one who had grappled with it, arising from the fact that the courts had attempted to apply an Act of Parliament passed for a totally different purpose; but the judges had felt that they were obliged to come to some decision, and as this was the only law in existence, they applied their minds to it with the hope of discovering some practicable mode of meeting the case. But this mode of dealing with railways was not to be applied to other things. If so, why not apply it to houses and every other description of assessable property?

The ASSISTANT JUDGE said he would ask this question: If profits had nothing to do with rateable value, supposing that a person took a piece of land which had never before been broken up, and, without knowing the value of it, gave £1 an acre for it, but when he came to farm it he was able to make £2 an acre of it beyond what any other farmer in the neighbourhood could do, would not the landlord be entitled to additional rent?

Mr. BOVILL submitted that he would not, as an abstract proposition from the facts stated.

The ASSISTANT JUDGE said since the corn laws had been repealed it was found that farmers could make more profits than they did under the old system, and there had been a very general raising of rents. The moment land improved, and the farmer got more for his capital and labour, the landlord said, "I must have part of those profits as additional rent."

Mr. BOVILL said if the difference in price arose from the inherent quality of the land, he might be entitled to it.

The ASSISTANT JUDGE said he referred to extrinsic circumstances, from the facility of obtaining corn from other countries, the increased power of production, and the diminished cost of obtaining supplies.

Mr. BOVILL said his answer was, that if the additional receipts to the farmer arose from an increase in the productive power of the land with respect to the existing state of things, no doubt the landlord would be entitled to a proportionate increase of rent, but not if the increased profits arose from the skill and energy of the farmer himself. This was precisely the case of a gas company; the profits arose from skill in manufacture and success in business, and not from the means of transit to a particular place. To take the productive power of land and make certain deductions, might be a proximate mode of arriving at its value, but it was not so in cases where the element of skill was introduced. This was a most material element in the present case, and did not affect the question of rent at all. In reference to the case of a farmer who had taken land which he was enabled to pay 20s. an acre for, the suggestion of the court was, that if he made it produce 40s. an acre, his landlord would expect an increased rent. By no means; and for this plain reason, that that increase might arise from his improved mode of farming, and there was plenty of other land in the neighbourhood which he could have for precisely the same rent, and which, if he were in the occupation of it, would yield him the same return.

The ASSISTANT JUDGE: It is quite clear, if the quality of the land is the same, and the circumstances of the occupation precisely similar, the value will be unaltered.

Mr. BOVILL: But then came the question, supposing no other farmer could make it produce more than half the amount.

The ASSISTANT JUDGE said the answer to that was, that in the case of a divinely instructed mind, which was wiser than the rest of men, the extra bonus which the application of that mind would ensure ought to go into the occupier's pocket: but all that a valuer took into consideration in estimating value was ordinary human skill and labour. If a man chose to work night and day, allowing himself only three hours' sleep, that would not be ordinary human labour.

Mr. BOVILL submitted that the test of the value of land was not what profit a man by his own ability or exertion could make out of it, but what he could get other similar land for. If the value of a house in Parliament Street was to be ascertained, the inquiry was not how much profit does the present tenant make per annum.

The ASSISTANT JUDGE said houses must be left out of the consideration, as there were always so many, especially in the metropolis, of a similar kind to be had, that the question of their value was solved without ascertaining what was meant by "rent." The statute said, "You shall rate upon rent;" and in order to know what rent was, they must know what the property was capable of producing.

Mr. BOVILL said "rent," in the sense of the statute, was what a tenant would give, and not rent according to a principle of political economy; and, with all respects to the writers on that subject, he considered that it was a most absurd mode to take profits in order to ascertain what rent was. In the case of a house, in order to know what its rent should be, you must know what you could get a similar one built for.

The ASSISTANT JUDGE: And that must depend upon the ordinary rate of property at the time. If the funds were at 60, the rent would not be the same as when at 90.

Mr. BOVILL said, for practical purposes, a man was governed by the consideration he had mentioned, although there might be circumstances which

after it was built affected the selling price of a house. This being accepted as the fact, the court would understand the evidence he was about to offer, and which showed that contractors were willing to provide for the appellants in this case, the property which was the subject matter of the rate, at 5 or 6 per cent. upon the cost of construction.

The ASSISTANT JUDGE said he thought the cost of construction might be a most material element in ascertaining the actual value of a plant in a particular parish, but as at present advised he should feel at a loss to determine the absolute rent in a particular parish with reference to any particular part of a work. He thought the point which the learned counsel was putting might be a very proper and even necessary step in apportioning the whole value. He would put it in this way: Supposing they had determined that the whole value of the concern was £10,000—the cost of construction or the actual value of the plant—and that the improved value of the land occupied in the several parishes, measured by the reasonable outlay upon it, was so much, then, as the whole sum taken in value was to all the property, so would each part be to the property in this parish. If they had one-twentieth part in this parish, then he should say that one-twentieth part of the whole value was due to this parish, without inquiring for a moment whether there was any gas sold in it or not, as in his judgment it was utterly immaterial to know where it was sold. What could it matter to the value of property like gas or water-works,—what could it matter to the improved value of the land in each parish whether the sale was in one place or twenty? It seemed to him just the same as a railway or bridge, or anything else in one particular parish, where, in order to earn the rent, it was necessary to occupy land in several. It was true it mattered not to the consumer whether the gas was manufactured fifty miles off or only one. It did matter to the seller, because he had works to construct and his gas to convey through many parishes; but looking at the statute of Elizabeth, it was the occupier of land who was liable to the rate, and looking at the fact that here there was an improved value of land, it was not material to the inquiry where the sale took place.

Mr. BOVILL said he would carry out that suggestion in reference to another view of the matter. He would suppose that this company had a large quantity of mains and pipes, and were supplying gas to a large extent and obtaining a large revenue from the parish of Paddington, and that at the price at which they sold the gas that revenue yielded them a handsome profit; and he would suppose that in an adjoining parish they had precisely the same extent of pipes and mains, but from circumstances, either from a desire to obtain trade or from the effects of competition with other companies, they sold their gas at a price which did not pay them. In that case, how was the value of the pipes to be ascertained?

The ASSISTANT JUDGE: Clearly not by reference to what took place in that parish. It was evident that if they sold at a ruinous loss in one parish for the good of the whole, that was a charge upon the whole.

Mr. BOVILL would take another case, because it was clear to his mind that profits could not be taken as the test. Supposing pipes were about to be laid down by another company, the question was, what could they get the accommodation they required for? And he might inform the court that a great change had taken place with respect to these manufactories. Gas companies had been treated at all times as manufacturers and as not liable to be rated upon their profits; and in the case of these companies of late years, it had been very much their practice to contract with persons to supply them with pipes and to pay a rent for them. Probably this had never been brought to the attention of the court, but it should be by the evidence to-day.

The ASSISTANT JUDGE: It is quite plain, it does not admit of a doubt, that for a construction of that sort they ought to have a return of say 6 per cent.

Mr. BOVILL would say so—6 per cent., including depreciation.

The ASSISTANT JUDGE: Without any evidence I should collect that.

Mr. BOVILL said he would not only show that contractors would be glad to do it for that, but he would prove that it had been done for 6 per cent. upon the outlay, as a fair and reasonable return in the way of rent for the accommodation offered and for capital invested in that way. He would show that if pipes were to be laid down in the parish of Paddington with every connexion and service-pipe which now existed, and if it were a question whether the Imperial Gas Company should take those pipes upon a rent or not, that they would be guided entirely as to what should be the amount of that rent by the consideration of what should be the interest upon the capital invested in those pipes. He would suppose again, that the Imperial Company were to determine no longer to supply the parish of Paddington with gas, and there were all their pipes now vacant—what would another company give for them?

The ASSISTANT JUDGE said the hypothesis of a value in Paddington only could not be taken. It must be taken upon the whole property, because, though by the Act of Parliament the parish assessed only for the value in the parish, a tenant could not be found for that part alone. It was the same with railways—a tenant for ten yards of the line only could not be found.

Mr. BOVILL would take the whole, because of course one parish must be taken with another. Now, if the company were to sell their business, and to preclude themselves from carrying on the trade at all, a tenant could, no doubt, be found who would give them something very handsome for their works. So would it be in the case which he had supposed of Messrs. Howell and James, if they were disposed to part with their concern on a similar condition. But in both instances there would be the element of good-will in the calculation, or otherwise all they would get would be the value of the premises, and no more. Assuming that this company were about to dispose of their whole concern at a rent without binding themselves not to compete, the person who came in as a tenant would have the advantage of the existing works, and all the mains, services, &c., but the Imperial Company could lay down fresh mains and erect fresh works, and supply every one of their customers still, because no other company could supply so well. The court might not know the secret, but rather than be rated as they were on their pipes, they would sell them all and get fresh ones laid down and rent them. These pipes were merely the means adopted for convenience of conveying the manufactured article to the houses of the customers; and the profit arose, not from the mains, but from the skill and economy with which the manufactured article was produced, and the liberality with which the company acted towards the public.

The ASSISTANT JUDGE: Let me ask this question—Supposing the sale of gas were confined to Paddington, and although the works of the company cost £1,000,000, the portion which was situated in the parish of Paddington cost only £1000, would you say that the rateable value there was only £60?

Mr. BOVILL: Yes, I should.

The ASSISTANT JUDGE: You must say that, if I understand your argument. Your argument is this—that the value of the occupation in any parish is measured by a reasonable per centage upon, I will not say the cost, but the present value of the construction of the works there.

Mr. BOVILL: It is; and I adopt it not as an abstract principle, but because it is the practicable mode of arriving at the rent.

The ASSISTANT JUDGE: It is a very easy mode.

Mr. BOVILL: And the other is a very fallacious mode, because it introduces matters which have nothing whatever to do with the value of the land.

The ASSISTANT JUDGE said the latter was the mode adopted in railway cases.

Mr. BOVILL contended that the cases were not identical. On a railway the further the line extended, the greater the profit; but in gas-works every additional mile travelled over by the mains increased the liability to loss by leakage, while the price of the article supplied remained invariably the same, however far it had to be brought from the works to the consumer.

The ASSISTANT JUDGE said, as at present advised, he was very much disposed to adopt the principle of apportionment.

Mr. BOVILL said in this particular case the court would be relieved from the question of apportionment, because there was no other parish supplied. The works of the company were at Fulham, and they supplied the parish of Paddington only from those works.

Mr. DOWDESWELL: They pass through Kensington.

The ASSISTANT JUDGE: Their works are at A, and they pass through B, in neither of which places they have any sale, and they supply C.

Mr. BOVILL said it was the same as the Hampton case, which was argued in the Queen's Bench last term. With regard to the manufactory of this company, it was carried on at Fulham, and there they employed their capital, skill, and energy. What had these pipes, then, to do with their profits?

The ASSISTANT JUDGE said, although their works were at Fulham, a part of their skill and energy was applied to drive the gas through the intermediate parish, and to sell it in Paddington.

Mr. BOVILL said he was content that it should be so taken, but that only showed how extremely fallacious it was to mix up profits arising from personal skill and management for the purpose of afterwards deducting it. There was no more reason in doing it in the case of gas-pipes than in that of two adjoining houses. The land in which the pipes was laid was of itself worth nothing, and it was only by having capital expended upon the pipes which were put into it that it became of value.

The ASSISTANT JUDGE said he thought Mr. Bovill was so far right, because generally the pipes were laid under the public highways, and therefore practically the value of the land was inappreciable. It was the improved value of the land which was the element in the consideration.

Mr. BOVILL asked, What was that value? The value arising from its being made suitable for the purposes to which it was applied. How was that done? By putting iron pipes into it at a certain expenditure of capital, and therefore a per centage upon that capital was the rateable value. If two contractors laid down two sets of mains through the parish, and the company wanted to take one set, what would they give for it?

The ASSISTANT JUDGE: You are now introducing a disturbing element—competition—which puts it at the minimum of profit required.

Mr. BOVILL: It might make a difference as to the minimum, but would not affect it in the way of increase.

The ASSISTANT JUDGE: But, as in the case of two railways where there is only a certain amount of traffic, so here there is only a given consumption of gas, and, if you divide the trade, you must to some extent diminish the profits of each.

Mr. BOVILL said it was quite clear that under no circumstances would any one give more than 6 per cent. upon the outlay, and the fact of there being two sets of pipes would tend to diminish, not increase, the rate up to that amount.

The ASSISTANT JUDGE: Supposing a person had some ordinary meadow-land, which by a small outlay in the construction of drains he could convert into a valuable water-bed by simply availing himself of natural resources, he would be entitled to receive a larger rent for that land so converted. Would you measure the amount of rent in that case by the cost of construction?

Mr. BOVILL said, certainly not. The two cases were not analogous. In the case of the water meadow, the land would produce the same after drainage, whether it was in the hands of A, B, or C. The rent in this case would be increased because of some inherent value in the land. But in the case of gas-pipes it was not so, because in the hands of one company they might make a profit, and in the hands of another none at all. In the case of railway companies the courts had adopted the mode, for it was no principle, of taking gross receipts and making certain deductions, in order to get at the rateable value; but the courts had distinctly repudiated the application of this mode to gas companies, while they admitted it in the case of water companies which traded in a natural production.

The ASSISTANT JUDGE said he did not agree that it was a natural production. It was a manufactured article.

Mr. BOVILL thought it was not necessary now to determine that question; all he said was that that was the principle which the courts originally adopted, and if it now turned out that water was a manufactured article, there might be a reason for overruling the decisions which had been given upon the point. It was contended by the railway companies at one time that they were manufacturers, the same as gas companies, and that their assessment ought not to be taken upon their receipts, but the court held that they were not. But now, though the court had decided that railways were not like gas companies, it was sought to make gas companies like railways, by adopting the mode upon which the latter were assessed. The only correct principle to proceed upon was to calculate a per centage upon the value of the pipes in the ground, whether the company made a profit or not. There was a capacity of being used for gas, and the question was, what were they worth to any one who could apply them to that purpose? That question would be answered by the evidence which he proposed to call.

The ASSISTANT JUDGE: I suppose, Mr. Dowdeswell, there is no dispute on the other side, supposing this principle to be correct as to the return which should be had upon the capital so employed?

Mr. DOWDESWELL: No. I think it likely that a contractor would supply the pipes for a remuneration of 6 per cent.

The ASSISTANT JUDGE: I will take it, therefore, that 6 per cent. is a proper amount which any person investing capital in this way should have, and which a tenant would be willing to pay.

Mr. DOWDESWELL: What do you say this 6 per cent. is upon?

Mr. BOVILL: Upon the cost of the pipes.

Mr. DOWDESWELL: Then you cut off the pipes from everything else?

Mr. BOVILL: The 6 per cent. includes everything. It is 5 per cent. to be paid for net rent, and 1 per cent. for depreciation, because that we should be entitled to.

Mr. DOWDESWELL: We say 6 per cent. net would be required. The contractor would not keep them in repair for that.

Mr. BOVILL said, persons were to be found who would undertake to do it. He was about to call the attention of the court to the judgment of Chief Justice Bayley in the case of the Birmingham Gaslight Company. In that case the question of quantum was presented to the court, and a distinction was taken between the value of land *per se* and when used for the purposes of the trade; but the court expressed an opinion that the company should be assessed, not at a sum equal to the value of their trade, but at that sum which the buildings, trunks, and pipes would let to a person willing to carry on the same business, or for that sum which the company would be forced to pay if the premises were not their own property. He did not know whether, as this matter would have to be taken to the Queen's Bench for final settlement, it would not be more convenient that the facts should be put into the form of a special case without going into it further.

The ASSISTANT JUDGE said, if the parties could agree, it would be better to do so.

Mr. BOVILL said, for the purposes of the argument, it might be assumed on the other side that their rate of £4005 was right, if they were entitled to proceed upon the principle of profits and deductions. If, on the other hand, the cost of construction should be taken, though there was a difference between the parties, it might be taken that £1376 was the proper amount.

Mr. DOWDESWELL said the rate would stand then, if his friend's principle did not prevail.

Mr. BOVILL said the cost of construction was £23,000, and 5 per cent. upon that was £1150, and that was the amount which the court should take. It must also be taken that the land without the pipes was worth nothing.

Mr. DOWDESWELL said he would not trouble the court on that point, as it might be taken that the land in which the pipes were laid, being the soil under the public streets, no real profit could be made of it.

The ASSISTANT JUDGE said the case would be this—Works in parish A; mains through B; mains and sale in C; no sale elsewhere. The company object to the amount of rate, and insist that that amount should be based on an estimate of the reasonable rent to be paid for the mere capital invested in the pipes in C. That reasonable rent, if that can be regarded alone, and without respect to anything else, would be £1150. Capitalists might be found who would lay pipes for such a return, and the company would be willing to give that amount. The question is, whether that amount which the company are willing to give and the capitalist to receive for these pipes is the measure of the rateable value.

Mr. BOVILL said he would just put it in this way, that a capitalist would be willing to provide the accommodation in the way of pipes for that sum, and that the company would be willing to give that sum for the accommodation so provided.

The ASSISTANT JUDGE: Whether they make 50 or 5 per cent. upon their capital is beside the mark?

Mr. DOWDESWELL: But that is irrespective of the connexion of those pipes with other parishes.

Mr. BOVILL: No, certainly not; we say the same principle will apply there.

Mr. DOWDESWELL: That is to say, that a person can be found to lay them down and receive that remuneration for so doing. It must also be stated in the case that a tenant can be found to give more than the sum which is here assessed as the net rateable value as rent for the entire concern as it stands—a very considerable sum, without any deductions.

Mr. BOVILL: That is with the goodwill.

Mr. DOWDESWELL: I will take the works and pipes as they stand, and my clients can produce to the Imperial Company a tenant at a far higher sum, clear of all deductions, than £4005.

Mr. BOVILL: Is that with permission to the Imperial Company to carry on their trade?

Mr. DOWDESWELL: Certainly—take their chance.

After considerable conversation, in the course of which it was agreed that the case for the Queen's Bench should be drawn by Mr. Huddleston,

The ASSISTANT JUDGE said, I shall only respite the appeal in this way, that if you differ in drawing up the case, I shall assume that no evidence can be given on the other side, and shall give my judgment on the data before me.

Mr. BOVILL said the case would go to the Queen's Bench under Baines's Act, as though the appeal had not been to the session at all.

THE GREAT WESTERN RAILWAY COMPANY *v.* THE SAME.

Mr. HUDDLESTON, Q.C., Mr. CRIPPS, and Mr. DIGBY, were counsel for the appellants; Mr. DOWDESWELL and Mr. POWELL for the parish; Mr. METCALFE and Mr. LITTLE represented Mr. Henry De Bruno Austin and others; and Mr. KARSLAKE appeared for Messrs. Rigby, builders.

Mr. HUDDLESTON said the rate appealed against was made on the 5th of October, 1858, and was fixed by the parish at £30,063, but how the odd "63" came to be put on he was at a loss to understand, after the manner in which the parish had formerly dealt with this rate. In 1846, upon an award by Mr. Pollock, the rateable value was fixed at £7378; in 1848 there was a slight increase; and in 1854, in consequence of new buildings, &c., a round sum of £2000 was added to the rate, and it was made £10,000; from that sum it was increased to £15,000; and in 1856 it was made £20,000. That amount, upon an argument on a special case, was reduced to £16,000; yet subsequently, without any notice to the company, the parish increased the rate to £30,063. Where they got the "63" from, after having dealt with the rate in round thousands, he could not tell, but supposed it had been added to make it appear that the estimate for the rate had been prepared with the greatest minuteness of detail, and was exact to a point. Although this enormous increase had been thus suddenly made, there had been not only no proportionate increase of the company's property, but no increase at all in point of fact, and of course the company had no alternative but to come to this court upon an appeal. One of the grounds upon which it was prayed by the appeal that the rate might be quashed was, that in Paddington there had been a systematic underrating of other property, and a non-insertion in the rate of property liable to be rated. The rateable value of Paddington was something like £550,000, yet he was prepared with evidence to show that property of the rateable value of £100,000 was not rated at all. The parish had greatly extended, and ground which had been used for garden purposes had been taken for building. Buildings had been erected, and although the ground had formerly been rated to the poor, since it had been built upon it had been taken out of the rate altogether, and was not included in the rate in respect of which the Great Western Railway Company entered this appeal. This, it appeared to him, was *laches* to the greatest possible degree. It was alleged that these buildings would not be rateable until they were completely finished and let, and the question he should raise upon this point was, whether they ought not to be included in this rate, by which the rate generally would be reduced. If so, the rate was clearly bad.

Mr. DOWDESWELL objected to this being gone into, and said he by no means admitted the accuracy of his learned friend's statements. This was an appeal by the company against the rate assessed upon them; it was quite another question whether these unfinished buildings were rateable, which he denied.

Mr. HUDDLESTON said the question affected the legality of the rate altogether.

After a long discussion,

The ASSISTANT JUDGE said he thought the most convenient course would be to go into this part of the case, and he would take the evidence of the exclusion of property said to be rateable from the rate, because, if that were proved, it would quash the rate.

Mr. *Henry Tait*, an accountant, was then called, and he stated, on examination by Mr. CRIPPS, that he had been employed to inquire what property there was in Paddington not included in the rate. He found that Mr. Henry De Bruno Austin had about 150 first-class houses not rated. The rents asked for them varied from £750 to £120 a year. They would give an average rateable value of £20,000. Messrs. Rigby had buildings also unrated; other persons had built houses which were also excluded from the rate. Altogether he had calculated the rateable value of all this property at about £70,000. Some of the houses were finished and fit for habitation.

Mr. METCALFE and Mr KARSLAKE contended that the houses which their clients had built, being unfinished and unlet, were not liable to be rated at all, there being no beneficial occupation. No value could accrue to the parish until they were finished and occupied, and it was submitted that the parish had done quite right in excluding this property from the computation for the rate.

Mr. DOWDESWELL said there were two things which the court must determine—whether this property was erroneously omitted from the rate, and that to such an extent as to justify the court in imposing upon the parish the signal inconvenience which would result from the quashing of the rate, by involving the paving, lighting, and other rates.

The ASSISTANT JUDGE ultimately ordered the rate to be quashed, as certain property of a rateable character had been omitted therefrom, but without costs, and made an order of substitution under the statute, the quashed rate to secure another

Rate quashed accordingly.

DURHAM QUARTER SESSIONS.

TUESDAY, APRIL 5, 1859.

(*Before* R. BURDON, *Esq.*, *chairman*, S. GREY, *Esq.*, G. H. RAMSAY, *Esq.*, J. F. ELLIOTT, *Esq.*, J. FAWCETT, *Esq.*, *and* A. WILKINSON, *Esq.*)

SUNDERLAND WATER COMPANY *v.* MONKWEARMOUTH SHORE.

Mr. DAVISON and Mr. WOOD appeared for the appellants, the Hon. A. LIDDELL and Mr. LEWERS for the respondents.

Mr. LIDDELL said this was an appeal by the water company, which had been rated by several townships at an advanced rate to what they were before. The question for the bench, he was happy to say, had been much narrowed by the agreement come to between the parties, that instead of taking each township separate, and trying the case between such township and the water company, which would involve the difficult question of finding out how much of the rateable value was to be apportioned to each, they had agreed to try one case, by which the court should decide what the rateable value of the whole water-works really was, and then means would be adopted as to how that amount was to be apportioned.

Mr. DAVISON asked whether Mr. Liddell was aware that the whole of the water-works was not in these townships?

Mr. LIDDELL: All he would say was, that the evidence he would lay before the bench would be confined to these townships. With regard to the question of rating, whatever the difficulty about the apportionment might be, there was no doubt as to the principle on which the amount was to be ascertained. The principle laid down, and he might say universally adopted, was what a tenant would pay to take the water company's works, and carry them on as the company themselves would do. This was arrived at after all the expenses were paid, and all the statutable deductions allowed. The question then remained, what will a tenant give to take the premises and work them himself? He did not apprehend there would be any dispute as to this principle, which had never been questioned in any case. Of course it had been a difficult matter for overseers in townships or parishes to rate works of this description. The usual mode which it appeared they went by in manufactories and buildings, when used for other than residential purposes, was to take an average of 6 per cent. on the capital invested. This was one mode—rather a rule-of-thumb way he must confess—by which it was almost impossible for the overseers to take the estimate of these works. But they did their best, because they got a gentleman of very great experience of the name of Picton, and went with him to the company's works, and asked for figures on which to base their calculations. But the secretary made excuses, said the figures could not be had, and, in point of fact, rendered no assistance whatever. These gentlemen then had to go away, and do the best they could with the materials they had; and he must say they had done their very utmost to come to something like an approximate estimate as to what the rateable value of the works was. Not content with having Mr. Picton's estimate alone, though that in itself would have been quite sufficient for the bench, the overseers of the township, in order to make assurance doubly sure, got the assistance of two other able gentlemen, and the three laying their heads together had arrived at an estimate which appeared to him to be a most reasonable one. This was the way they proceeded. They took the published accounts of the company for the year ending December 31, 1857. They found the receipts to be £8517. 11s. 3d. In the same account an item was put down showing an increase in the year for rents due but not paid, £319. 10s. 2d. This, when added to the receipts, increased them to £8837. 1s. 5d. They then took the expenses, which were put down at £1978. 19s. 4d., and deducting that from the gross receipts, it left a net balance of £6858. 2s. 1d. Now a tenant, in order to carry on the water-works, would require a certain sum of money for the first half year, and £4112 would be sufficient for that purpose; 25 per cent. upon this—being 5 per cent. for interest, supposing he had to borrow it, and 20 per cent. for tenant's profits—would amount to £1028, and this taken off the £6858 left £5830. There was a further sum yet to be deducted for reproduction or renewal. He was informed that the amount thus required was inconsiderable in water companies; and this also would be obvious to the bench when they considered the kind of stock that water companies had. Two hundred pounds a year they contended was quite sufficient for such a purpose, especially as the stock was now in a very good state. The sum of £200 a year, if invested at 4 per cent., would in twenty years produce £6000; and for the first twenty years the company was worked that would amply cover anything that might happen to them in

the way of reproduction. The court would remember that this fund was a sinking-fund, and not applicable to ordinary repairs, which were allowed in the annual accounts. After deducting this £200, there remained £5630. The usual deductions for rates and taxes levied in the townships were then to be made. These were estimated at 5s. 6d. in the pound, and came to £1215, which, when also taken off, left a sum of £4415 as the net rateable value of the water-works.

The following witnesses were then called:—

Mr. *T. F. Hedley* said he was assistant overseer for the parish of Sunderland. He remembered going with Mr. Picton to the secretary of the water company, and asking for a sight of any plans of works and of extent of mains. The secretary answered he had none. Mr. Picton had made a valuation. He agreed with it.

By Mr. DAVISON: The company was rated before on £1289. Now they asked it to be rated on £4052. They acted upon no principle formerly. This was the first valuation of the works that had been made since he had been connected with the parish. Did not know that one-third of the people in Sunderland were supplied with water coming from a separate township.

Mr. *Picton* said he was a surveyor, and resided in Liverpool. He came to Sunderland in August last. He examined the Humbledon Hill works, and found them in excellent condition. He could not ascertain the extent of the mains and pipes. He made an estimate of the rateable value of the works, taking as his principle what a tenant would afford to pay, leaving himself as fair a profit as would induce him to come into the market. To make the estimate, he set to work first to ascertain what the entire receipts of the company were, as the basis from which any tenant would start from to make his calculations. He then took from the company's own balance-sheet the amount of their expenses, which a tenant would also be liable for, and which he found to be £1978. 19s. 4d. The capital a tenant would require to carry on these works would not be large, because, with the exception of such things as coal, oil, tallow, and a few pipes for laying down, or altering others, and the payment of wages for a few months, there would be little else to meet. To ascertain this, he took first 15 per cent. on the net receipts, amounting to £1028; but seeing in some of the recorded cases——

Mr. DAVISON: Don't tell us anything about the recorded cases.

Mr. *Picton:* Well, then, he took another mode, and he arrived at about the same result. He had allowed £200 as a sinking-fund to accumulate until the reproduction of any portion of the works might be necessary, and he had also allowed rates at 5s. 6d. in the pound, and after all this was done there remained as the net rateable value £4415.

By Mr. DAVISON: He had rated water-works before for parishes, but not for companies. Had rated Birkenhead, for instance. Did not know the amount in that case had been compromised. Did not rate upon profits. Rated upon the beneficial interest to the tenant. If the company made £2000 more next year, then, if he was of opinion that a tenant would give so much more rent for the concern, he would increase the amount of assessment. Was not prepared, without time being given to him, to answer the question as to how he would rate two companies in one town, with the same amount of plant, &c., but the one doing business and the other not. But he would say, in a general way, that in estimating the value, say of an inn or tavern, the first question a tenant would ask would be, what is the take of the house? and from that he would make his calculation as to what he could afford to give. He knew a case of an eating-house where £1000 was given for a single room. In the present case he considered the balance-sheet was the best way of getting information.

Mr. *Hunt*, surveyor, of Stockport, said he had considerable experience in matters of this kind. He had heard Mr. Picton's evidence, and he corroborated it.

By Mr. DAVISON: Had rated several water-works. He might mention Stockport, Huddersfield, and Glossop. With regard to the going up and down of the rating, if they took mills for instance, it was well known that when spinning was bad, mills let very badly, and the rating was consequently on a low amount; on the other hand, when spinning was good, mills went up, and the rating went up with them.

Mr. *Verralles*, surveyor, of Birkenhead, said he entirely concurred in the evidence given by Mr. Picton.

Mr. DAVISON, on behalf of the company, said it was very desirable that this matter should be settled, because it was not to be tolerated that the parish authorities should be allowed to jump up from £1289 in 1858 to £4052 in 1859, without some good reason. It was all very well for the parish to come there. He dared say they did it in perfect fairness, and in the sincere desire to do what was right. But it must be remembered that they were fighting with the parish funds, and a very small sum it would cost them. For three or four of them were joined together, and, spreading the costs through them all, probably none of them would feel much difference. The company did feel it. But then it was the order of the day to rate companies and to bring actions against companies. "Never mind," they said, "it is only a company; rate them up; they will much rather pay than go to the expense of an appeal, because it comes out of the pockets of the shareholders. The shareholders are a large body; they will never feel it." But they did feel it. It was not fair, and they could not stand it. Why did not they go by the Act of Parliament at once? It was plain enough, and said that no rate should be allowed by any justice of the peace, or be of any force, that should not be made upon an estimate of the net annual value of the several hereditaments—that is to say, of the rent at which the same might reasonably be expected to let. And, as if this had not been enough, there had been cases decided over and over again to strengthen it. He held in his hand the report of a case decided the other day with reference to the West Middlesex Water-Works. The whole matter was fully discussed in the Court of Queen's Bench, and judgment pronounced by Mr. Justice Wightman, who, on the question requiring the principle to be stated on which the company was to be rated in respect of their plant, engine-house, cottages, buildings, wharfs, mains, land, and premises, said: "We answer in the words of the Mile-End Old Town case, that they are to be rated as mere land and buildings, with their fixtures and machinery attached, and deriving some additional value from their capacity of being applied to such purposes as that of a water company." For instance, if they had an engine-house without an engine in it, it was quite clear that even the sanguine Mr. Picton could not rate that very much. But that was not what they said. They said: Rate the engine-house as an house for the purposes of the water company, and rate the land, buildings, fixtures, &c., as deriving some additional value from being attached to the water company. But they must not rate the goodwill nor the profits. In the 3rd and 4th Victoria, chap. 45, it was positively enacted that it should not be lawful for overseers to tax any inhabitants in respect of profits. Now, had Messrs. Picton and Co. done that? Of course they would not admit they had. But what they had done was to take for their text, the balance-sheet of the company. Upon that, each of the gentlemen from beginning to end had given his evidence. If they found a company making £6000 a year, then, after taking off certain deductions, they would rate them upon that, just because they earned it. Mr. Hunt told them that when the prices of cotton rose, mills rose, and so did the rates; and when they went down, rates went down too. But Mr Hunt's principle was against the spirit of the Act, which said profits should not be rateable. The true principle on which these premises should be rated at was, what a solvent tenant would pay for the occupation of them, to work them in the way in which the company used them. He would call his witnesses before them, who would tell them what the fair principle was, and wherein it differed from that brought forward by Mr. Picton and the other gentlemen in this case. There was another matter these parties had entirely overlooked—namely, that one-third of the whole of the people of Sunderland were supplied from Fulwell, which was not in any part of the parishes now before them. In fact, they were positively seeking to rate Fulwell for the benefit of these parishes. He concluded by calling the following witnesses:—

Mr. *Hawksley*, civil engineer, said he had been largely engaged in valuing water-works, and had been engineer to the present company for twelve years. The sum to which these works should be assessed was £1961. 17s. 2d., including the offices in Fawcett Street. He valued hereditaments of every kind, and the land occupied by the pipes. That was the sum the company would expect to receive from a tenant after all the deductions were made. The works at Humbledon Hill he valued at £12,100. 18s. The old works, also within the appellants' parishes, he valued at £2798. 7s. 3d. Upon that amount he put the usual rent which a landlord charged his tenant when he let premises for improvement. Property of this description bore in the market a rent of 7 per cent. upon its cost. Any landlord would erect property of that character, if the tenant would pay him 7 per cent. on the outlay. The gross rent on £14,899 was £1042. 18s. 7d. That amount was subject to certain statutable deductions, which were directed to be taken off under the Parochial Assessment Act. In this case the only deductions applicable were for insurance and renewal. The insurance applied to the destructible portion of the buildings, which he valued at £3000, and the deduction in that respect was £11. 5s. The renewal-fund was reckoned at 1 per cent. per annum on that portion of the hereditaments liable to wear and tear, which he valued at £8630, and which consisted of the tanks, the engine-house, the boiler-house, and other things that would have to be renewed after some years. This gave a further deduction of £86. 6s. The total deductions here, then, came to £97. 11s., which left the net rateable value of the hereditaments at the pumping works, £945. 7s. 3d. There was besides a large quantity of land occupied by the pipes passing through the streets. The value of this land was £969. 4s. 11d., which added to the former sum made £1914. 12s. 2d. The offices in Fawcett Street were worth £54 per annum. The statutable deductions upon it amounted to £6. 15s. per annum, and the net rateable value was £47. 5s. Adding this to the former amount they had £1961. 17s. 2d., which he considered the net annual rateable value. The valuation had been made in conformity with the Act of Parliament. Fulwell is a township not included in any of the appeals, and three-tenths, very nearly one-third, of the water supplied to Sunderland came from Fulwell.

By Mr. LIDDELL: Suppose a man has a public-house worth £15 a year, and a canteen in it which produced him £530 a year, he should rate them, since the passing of the Parochial Assessment Act, on £15. He did not allow anything at all for the receipts or profits of the company. 7 per cent. was not ordinary builders' profits. He should expect to get from 4 per cent. up to 9 per cent. upon buildings, according to the description of them. He considered the ground occupied by the pipes to be of the ordinary value of all other ground in the neighbourhood. Pipes, under Act of Parliament, were made specially moveable. With regard to railways, receipts were taken into calculation because there was no other known mode of rating them.

By Mr. DAVISON: If there were two drapers occupying houses identically the same in every respect, the one making £2000 a year, and the other £1000, he should rate them both alike. With regard to the land occupied by the pipes, he had valued it at 5d. per square yard per annum.

Mr. *Barlow*, civil engineer, said he had considerable experience in rating works of this description. He had, with Mr. Hawksley, gone over the water company's premises; they had made their estimate together, and he concurred generally in what he had said.

Mr. *Martin*, civil engineer, of Leeds, said he also concurred with Mr. Hawksley in the estimates he had produced.

The Hon. A. LIDDELL, in reply, said it was too late in the day for gentlemen to come to the Quarter Sessions and say that in no one single matter of property except railways were profits to enter into the estimate at all. He humourously referred to Mr. Hawksley as Chief Justice Hawksley, whom he knew of old, whom no cross-examination could move from what he had stated, and whom he preferred dropping like a hot coal. (Laughter.) Mr. Hawksley said the rateable value was only £1961. He wished he was the tenant at that rate, as he would make something like £8000 a year at it. If they looked at the Mile-End Road case, already alluded to, where Mr. Justice Wightman says that the companies premises are to be rated as mere lands and buildings, deriving some additional value from their being applied to such purposes as a water company, they would find he adds, and "such additional value is derived from the increase of demand beyond supply." What was this, if it were not receipts? Again, Mr. Justice Wightman stated that the direct source of profit was the delivery of the article to the consumers, and that "the instrument of delivery should be rated for the net profits, and if the service-pipe belongs to the consumer, the junction of the service-pipe with the main is in the occupation of the company, and is rateable." He would not take up their time by further discussing the matter. He left it in the hands of the bench. His estimate he considered was supported by all decided cases; the other was only settled by Chief Justice Hawksley and the Puisne Judges Barlow and Martin.

The bench having retired, returned in about twenty minutes, when the CHAIRMAN said: They had no doubt of the principle on which the rating should be made. It should be on such sum as a solvent tenant would give for the concern, and upon that they had come to the conclusion that the net rateable value was £2369. 13s. 9d.—each party to pay their own costs.

SUNDERLAND GAS COMPANY *v.* MONKWEARMOUTH SHORE.

Mr. DAVISON and Mr. WOOD appeared for the appellants; Hon. A. LIDDELL and Mr. LEWERS for the respondents.

Mr. LIDDELL said: In this case they were relieved from the difficulty of any part of the works being out of the townships. The rate had been arrived at in the same way as in the previous case. The amount was £4240, which was considerably under what they made the rateable value to be. The gross receipts were taken from their own accounts at £20,665. 11s. 7d., and the expenses £12,374. 2s. 10d., leaving the net receipts £8271. 8s. 9d. In this case the tenant would require a much larger capital than in that of the water company, and therefore the sum allowed for this was £10,000;

20 per cent. upon this amounted to £2000, which left £6281. 8s. 9d. Then they deducted rates at 5s. 6d. in the pound, amounting to £1355, which left as the net rateable value £4926.

Mr. *Picton* verified the figures as given by Mr. Liddell.

By Mr. DAVISON: The meter-rents he believed to be rateable. They amounted to £920.

Mr. *Hunt* and Mr. *Verralles* gave corroborative evidence.

Mr. *J. Candlish*, Mayor of Sunderland, said he had offered to take the premises of the gas company as a tenant, and give them 6 per cent. upon the gross cost of them, subject to gas being charged 20 per cent. less than it now was. The company charged 3s. 9d. per 1000 cubic feet; he undertook to charge 3s. The sum of £4240 for rating purposes he considered one-half too little.

By Mr. DAVISON: Was the secretary of the company once. They did not do any good then. If they had no business at all, he would give nothing for the concern. There was another company in the town when he was secretary. There was now only one company.

Mr. *Smith*, proprietor of gas-works at Seaham, considered 6 per cent. on the gross cost to be a fair sum to give them for rent.

Mr. DAVISON, for the appellants, said the business of Messrs. Picton, Hunt, and Co. in this case was very simple. They just took the gross receipts and the gross expenses; deducted the one from the other; gave a manager £2000 a year for working it, provided he put in £10,000 of capital; and deducting £1355 for rates, the balance was the net rateable value. This was the whole calculation; very simple, certainly, but a decided mistake from beginning to end. He had no doubt Mr. Candlish in his offer was perfectly sincere, and that if he had got it he would have made a good thing of it. But the question was, what would a solvent tenant give for the manufactory without taking into consideration the goodwill? and he would call before them gentlemen who would say what that sum really should be.

Mr. *Hawksley* said he had made a valuation the same way in this case as in the other, and he found the net rateable value was £2126. 15s. 5d. The different works of the company, taken altogether, amounted in value to £17,436, which would command a rent of 7 per cent., amounting to £1220. 10s. as the gross annual value. The statutable deductions for renewal and insurance were £131. 5s., making the net rateable value £1089. 5s. A small portion of the premises in Russell Street, occupied in one part by a workman, and in another as an office, was of the gross value of £24 per annum: the statutable deductions amounted to £4, and the net rateable value was £20. There were 93,703 yards of ground occupied by pipes. The value of these was £976. 1s. 5d. per annum, being 2¼d. per lineal yard, or 5d. per square yard. This would make the net annual value £2085. 6s. 5d. Then there was an office in Fawcett Street of the gross annual value of £48; the statutable deductions amounted to £6. 11s., leaving the net rateable value £41. 9s., which, added to the other, made a total net rateable value of £2126. 15s. 3d.

By Mr. LIDDELL: A portion of the premises were not occupied, namely, those purchased from the old gas company. £18,000 was given for them, together with some pipes in the street. They would not sell now for more than £3000.

Mr. *Barlow* and Mr. *Martin* said they agreed generally in the estimate made by Mr. Hawksley.

The Hon. A. LIDDELL having briefly replied, the bench retired a few minutes for consultation. On their return, the CHAIRMAN announced that they had decided to fix the net amount at £3094—the respondents to pay all costs.

Miscellaneous News.

LONDON GAS COMPANY.

The Ordinary Half-Yearly General Meeting of the Shareholders of this Company was held at the Freemasons' Tavern on Wednesday, the 13th inst. —E. HAWKINS, jun., Esq., the governor, in the chair.

The SECRETARY having read the notice convening the meeting, the CHAIRMAN submitted the directors' report and statements of accounts, which, having been previously circulated among the shareholders, were taken as read. They were as follows:—

Your directors submit to you the balance-sheet and half-yearly account, showing the result of the manufacture and distribution of the company's gas up to the 31st day of December last. A statement of the profit and loss for the past half year is annexed to this report. It will be seen by the annexed statement that, after appropriating £750 to the redemption-fund, and £1600 to the fund for contingencies, the sum of £16,680. 14s. 4d. remains applicable to dividend. Out of that sum the dividends upon all classes of preference shares and stock will be paid on and after the 15th instant; and the directors recommend that at the same time a dividend of 15s. per share, being at the rate of 3 per cent. per annum, be paid upon the ordinary shares which have been paid up in full.

Thus after many years of anxious care and difficulty on the part of the directors, but through the whole of which period the support of the great body of the shareholders has never been wanting to them, they have at last been enabled to conduct the company to a condition in which payment of dividends upon the ordinary shares may safely be renewed.

The redemption-fund, of which mention is made above, is a fund which the company is required to form under the "London Gaslight Act, 1857," in order, in process of time, to reduce the capital to the same extent as it was then increased by the creation of debenture stock. Under the provisions of that Act, the company is required to set apart half-yearly out of the profits, before payment of any dividend upon the ordinary shares, £750, until the sum of £34,931. 5s. shall have been so set apart; and the money so set apart is required to be expended in paying off debt, and in purchasing and cancelling any shares or stock of the company.

With respect to the past half year, the increased profit, as compared with that of the corresponding previous half year, has arisen from the causes to which the directors alluded in their last report. From improvements in purification, a larger amount of ammonia has been obtained in a saleable form; the natural extension of business has brought with it increased revenue; and the removal from the streets of mains which could be dispensed with, has diminished the loss occurring from leakage. To this latter subject the directors will continue to devote their attention. The process of removing useless mains is necessarily slow, but it must always result to the company in diminishing waste, and to the public in rendering less frequent the necessity of disturbing the pavement, accompanied as it is by the stench and possible injury to health caused by the saturation of the soil with gas.

The most important work to be undertaken during this year is the building a house over the ovens now standing upon the copyhold premises at Vauxhall; so that in future the whole operation of carbonizing may be carried on under a closed roof, and the inconvenience from the occasional issue of smoke and steam provided against.

In order to mark their sense of the close attention of the engineer, Mr. Jones, to every branch of his department, and particularly of the success of the system of purification which he has introduced, the directors have thought right again to increase his salary.

The power of dealing with the salary of the secretary does not lie with the directors, but with the general body of the shareholders. Mr. Hinde has now been in the company's service for nearly twenty-five years. Fifteen years since, when our business scarcely exceeded one-third of its present amount, it was thought due to him to fix his salary at £500, £100 of which sum he voluntarily resigned during the nine years of depression which commenced in 1847. The directors therefore now recommend that, as an act of justice, as some compensation for the salary which he has so long relinquished, and in acknowledgment of the valuable and important services which he has rendered to the company, Mr. Hinde's salary be increased to £600.

Two directors, namely, William Lee Wright, Esq., and George Hallett, Esq., retire by rotation, and being eligible, offer themselves for re-election. One auditor, namely, George Pearson, Esq., retires also by rotation, and being eligible, offers himself for re-election.

Dr. PROFIT AND LOSS, FOR THE HALF YEAR ENDING DECEMBER 31, 1858. *Cr.*

To coals	£24,773	19	4	By gas	£58,795	13	5
Purifying materials	451	3	4	Coke and other products	14,725	18	8
Stores	1,699	13	2	Rents	514	1	6
Wages	7,940	16	9				
Wear and tear	2,795	5	8				
Royalty	342	3	0				
Meters—repairing and fixing	1,385	4	1				
Directory and auditing	530	0	0				
Salaries	1,632	10	0				
Rates and taxes	1,145	8	10				
Rents	790	10	0				
Commission	827	13	10				
Stationery and incidental expenses	778	0	4				
Allowances and bad debts	1,695	2	11				
Law expenses	500	0	0				
Depreciation	7,373	8	4				
Income-tax	123	1	6				
Balance	19,221	12	6				
	£74,035	13	7		£74,035	13	7
Interest on borrowed money	£2,899	6	10	Balance brought down	£19,221	12	6
Redemption-fund	750	0	0				
Set aside for contingencies	1,600	0	0				
Balance	13,972	5	8				
	£19,221	12	6		£19,221	12	6

Dr. DIVIDEND-FUND. *Cr.*

To amount of preference share dividend, October 15, 1858	£8,306	5	0	By surplus profits, June 30, 1858	£11,968	6	6
Ditto debenture stock dividend, October 15, 1858	953	12	10	Balance as above	13,972	5	8
Balance	£16,680	14	4				
	£25,940	12	2		£25,940	12	2

The CHAIRMAN moved that the report and accounts be received and adopted. In doing so, he said he should have no occasion to occupy much of their time, as their circumstances were so easy that he had very little to say. He believed the most interesting subject brought before them in the report was the resumption of the dividend upon the original shares. They had now been eleven years in bringing that state of things about; but he thought those who recollected the state they were in when the present board undertook the management of the company, and even a little before that, would not consider such a period as eleven years too long to do what the board had done. He could only say that he thought it his duty, when he first entered upon the active management of the company, to lay their affairs before a most competent authority in commercial matters, and without mentioning any names, he might state that the opinion then given was that no company in such a position had ever been saved from bankruptcy. That opinion, moreover, was expressed without a knowledge of the fact that in a very short time they would have to submit to a reduction in the price of gas, from 7s. or 8s. per 1000 to 4s. 6d. Since then those who had been shareholders knew what the directors had had to contend with. Their difficulties, however, had been overcome—partly by the assistance of the shareholders from time to time, and partly by obtaining from the Legislature Acts of Parliament which enabled them to carry out those measures which they thought most beneficial to the interests of the company. Lastly, they had had to contend against the extreme difficulty of having the main portion of their works upon leasehold premises, and being compelled to purchase other land and to reconstruct their works. He wished to assure the shareholders that they had not resumed the payment of dividend on the original shares simply because the directors had promised that somewhere about this time such would be the case, but because their accounts showed they were warranted in doing so, with every prospect of continuing that rate of dividend, and, he hoped, within a moderate time, of increasing it. After providing for a dividend at the rate of 3 per cent., they still had an adequate sum to carry over to the contingent-fund, and a further amount to place to the credit of the dividend-fund; for, although he looked almost with certainty to the continuance of this dividend next half year, and for an increase in sub-

sequent years, yet, as the half year ending Midsummer was always their worst half year, he thought it was well, for the sake of safety, to carry over a small sum to the dividend-fund, in order to make certain of the payment of the dividend upon the original shares next Midsummer, although he felt pretty sure that they would be able to meet that dividend without having recourse to that fund. One of their principal aids to profit during the past half year had been a point to which his friend, Mr. Gray, had constantly called their attention—viz., the reduction of the leakage. They had, by taking up the small mains and laying down larger ones, succeeded in reducing the leakage so as to bring it within the limits which Mr. Gray had stated ought to be a test of good working. For every ton of coal consumed they had delivered something like 7500 feet of gas to the consumers. The next most important matter to which he had to call their attention was the parliamentary inquiry with reference to gas matters in the metropolis. Many persons, he was aware, laboured under the apprehension that that inquiry would result in a diminution of the dividends upon gas property. He believed it would have a contrary effect. In point of fact, a parliamentary inquiry was the very thing which the companies wished for, although they did not wish to have it brought about by any movement on their own part. It was better that it should come in the shape of an appeal by the public against any supposed injury and injustice than upon the petition of the companies themselves, to protect their own interests. He believed the interests of the companies would be protected in any case; for he contended that the course taken by the gas companies was a right course, not only as regarded their own interests, but as affecting the interests of the public at large. He believed Parliament would never again allow two companies to compete in the same district: the inconveniences altogether were so great that Parliament would never allow it to occur again; and the gas companies would no doubt be allowed, under certain limitations to which they did not object, to continue that offensive thing called monopoly. The companies would probably be called upon to continue that which it had always been their aim to do, viz., the supplying of gas through well-regulated meters, so that the public would only pay for the gas which they actually consume. All parties who had been brought into connexion with this company, either as consumers or shareholders, knew that there had scarcely been a complaint on the score of the registration of the meters. In such cases the directors had always said, "Put up your own meter, or we are ready to have our meter tested by any competent person of good character." He was happy to find that Lord Redesdale had brought in a bill expressly upon the subject of registration of meters, which he thought would operate beneficially to all parties. He imagined that Parliament would make some restriction as to the price of gas; at the same time it was a delicate thing to do in a free country, where the price at which an article could be supplied was dependent upon the fluctuating cost of the materials used in the manufacture. But he imagined Parliament might go to the extent of appointing, as was now practically the case, that the accounts of gas companies should be open to public inspection, and that some competent person should be appointed to regulate the price to the consumers proportionally upon the amount of dividend which the company were receiving; so that, instead of the great fluctuations that had taken place during the last ten years, they might look forward to a more settled state of things. The next point to which he would allude was the manufacturing question. Although there could be no question that the system of districting had enabled each company to make better provision, by laying down larger mains, &c., for the supply of gas to the public, yet it must be admitted that a great deal was due to the engineer's skill in the use of the means afforded him in a way beneficial both to the company and the consumers. They had recently —very deservedly, he considered—increased the salary of their engineer, Mr. Jones, to the highest point, he believed, ever paid to a London gas engineer. The directors had thought it right to do so, although Mr. Jones had been comparatively only a short time with the company, in the full belief that they might look forward to still further exertions on the part of that gentleman, upon whose skill in the conduct of the manufacture and distribution of the gas their dividends mainly depended. There was another officer of the company who was deserving of honourable mention, viz., the secretary, who had not only to take the place of the board in their absence, but was, as all efficient secretaries must be, the guide of the board in many matters when they met. He believed the greatest charge that had ever been brought against Mr. Hinde was that he was too reserved. Now, he (the chairman) regarded that as one of the best qualifications of their secretary; and when he had declined to enter into full explanations of matters, they might depend upon it the reserve was dictated by a regard to the interests of the company. It was frequently necessary for the directors to pursue the same course, even at the risk of being thought reserved. He could assure them the secretary would have acted very improperly if he had answered many of the indiscreet inquiries that had been put to him. Of the vigilance and zeal of Mr. Hinde it was impossible to speak too highly. In several important matters, vitally affecting the interests of the company, Mr. Hinde was the first to obtain information of what was going on, and laid it before the board long before those matters became public, by which means the board were enabled to provide against hostile measures before those measures were brought to a focus. He was happy to say that in addition to the opinion which the board entertained of the services of Mr. Hinde, they had the testimony of other companies with regard to that gentleman's efficiency, and he believed that feeling would be generally reciprocated by every shareholder who had been personally brought into connexion with him. With these few observations he would now move, "That the report and statement of accounts be received and adopted."

Mr. RHODES seconded the motion, which, after some remarks by Mr. SYKES, was adopted.

Mr. R. A. GRAY rose to propose a resolution, and in doing so he said he felt great satisfaction at the opportunity afforded him of expressing the high opinion he entertained of the judicious course of management which had characterized the direction under circumstances of a very discouraging nature. To their untiring energy they were indebted for the present satisfactory position of the company, and he had no doubt that under their very able management their dividends would be increased. It was not, perhaps, a desirable circumstance at the present time to declare a very liberal dividend, because an outcry was being raised against gas property which sought to bring it down to a level which would be unproductive to the proprietors. The course pursued in the House of Commons was one which he thought would prove to the ultimate benefit of the companies without inflicting any injury upon the consumers; for it was obvious that the interests of gas companies and those of the public were identical. He was unhappily connected with a company which had been an object of much persecution; but as he felt conscious in his own mind that those persecutions were undeserved, he lived in the hope that, before a distant day, those who had inflicted so much injury would compensate them for it. The districting arrangements about which so much was being said, as though ultimate injury to the public and an undue advantage to the companies must result, was a matter which was forced upon the City of London Company, to which he belonged, by the Government in 1823, and the condition of it was, that no competing company should be allowed, whereas that arrangement had been trenched upon to the serious injury of existing interests. There was at the present time a great outcry made against the works of the gas companies on what were called sanitary considerations; and in their recent application to Parliament the City Gas Company had had to contend with opposition from this source. But the evidence which was brought forward on that occasion by the opponents of the bill failed to convince the committee of the House of Lords that any injurious results to the public health arose from the manufacture of gas as conducted by the City Gas Company, while the promoters were able to show that a considerable immunity from infectious diseases was enjoyed by those who were employed in such works. He fully concurred in all that had been said by the chairman as to the merits of their engineer and secretary, and considered that the proposed addition to the salary of the latter gentleman was hardly commensurate with the justice of the case, seeing that during the long period of difficulty through which the company had passed he had voluntarily relinquished an equal amount of salary, which would now only be barely restored to him. In addition to the reinstatement of the salary to its former amount, he would propose that a piece of plate should be presented to Mr. Hinde, on which should be inscribed the signal services he had rendered to the company. Having expressed the sentiments which he felt with regard to the secretary, he would come back to the more immediate purpose for which he had risen—viz., to propose that the sum of £300 per annum be added to the remuneration of the directors. In conclusion, he referred to the valuable services rendered by Mr. Hall, the former chairman of the company, and suggested that they should be commemorated by the presentation of a piece of plate.

Mr. PACKE seconded the motion, which was cordially and unanimously adopted.

Mr. GRAY said he had intended to propose that an addition of £100 per annum be made to the salary of the secretary; but, as that proposition was involved in the adoption of the report, it was unnecessary to make it the subject of a special resolution.

It was then agreed that, with reference to the proposed presentation of plate to Mr. Hall and Mr. Hinde, a subscription list should be opened, limited to a small amount, in order that each shareholder might have the opportunity of testifying his appreciation of the services rendered by those gentlemen. Mr. Gray expressed his conviction that the list would be full in twenty-four hours.

The CHAIRMAN returned thanks on behalf of the board for the high compliment that had been paid them in recognition of their services.

Mr. HINDE, in a few appropriate observations, acknowledged his obligations to the proprietors.

The retiring auditors, Mr. G. Hallett and Mr. G. Pearson, were unanimously re-elected; and votes of thanks to the directors, engineer, and chairman, terminated the proceedings.

IMPERIAL GAS COMPANY.

The Ordinary Half-Yearly Meeting of this Company was held on Thursday, the 14th of April inst., at the Offices of the Company, John Street, Bedford Row—W. P. RICHARDS, Esq., governor, in the chair.

The SECRETARY read the advertisement convening the meeting, and the corporate seal of the company was affixed to the register of proprietors.

The CHAIRMAN then read the following report:—

Your directors have to report that the gas inquiry committee was re-appointed in the House of Commons at the early part of this session, but that little progress has been made by the parish delegates in establishing their alleged grievances.

That whilst they are endeavouring to persuade the committee to fix the present charge of 4s. 6d. per 1000 feet as the maximum price which the metropolitan companies shall be permitted to charge, they are, with singular inconsistency, attempting to raise the parochial rates on the company's pipes in some instances as much as 700 per cent.

This fact, together with the great fluctuations constantly taking place in the price of the raw materials and the residual products, will, no doubt, when the companies' turn comes to be heard, have due weight with the committee.

Your directors repeat that, so far as this company is concerned, they have no fear of the result of the inquiry, should it be renewed in the new Parliament.

They are quite prepared to show that the widely scattered district allotted to the Imperial Gas Company could not be supplied with gas at the present low price but for the extensive business of the company and the large amount of capital employed at a very low rate of interest, arising from the savings of twenty-five years, during the whole of which time the dividends paid to the proprietors never exceeded 6½ per cent. on the invested capital, and for the greater part of that time did not average 5 per cent.

Simultaneously with the inquiry committee in the House of Commons, a committee was sitting in the House of Lords on a bill introduced by Messrs. Charlton and Greenway, solicitors, of Garden Court, Temple, under the title of "Borough of Marylebone Gas Bill," to supply the Borough with gas at 4s. per 1000 feet; but at the conclusion of the promoters' case, their lordships, without even calling upon the opponents of the bill to address them, decided that no case had been made out for the bill.

A bill has likewise been introduced into the House of Commons this session for extending the West London Railway from the Kensington Canal Basin to the river Thames, the line of which is in close proximity to your Fulham works.

This bill has engaged the anxious attention of your directors, and they have every reason to hope that the clauses which they have caused to be prepared to protect the interests of this company will be inserted by the promoters, and thus save an expensive parliamentary contest.

Your directors have now to call your attention to the statements of accounts for the half year ending the 31st of December last.

They exhibit an increase of £10,000 gas rental over the corresponding half year of 1857, and of upwards of £5000 in your receipts for coke, whilst the cost of coals is not much in excess of the corresponding half year.

The result of the half year's operations will enable you to pay a dividend at the rate of 9 per cent. per annum on your share capital, being about 7¼ per cent. on the total capital invested, and carry over £2360 to the next account.

Your directors in their last report mentioned that they had availed themselves of opportunities which offered to purchase some land and premises adjoining your Pancras and Shoreditch works.

In order to provide for these purchases, they have thought it prudent to issue £10,000 debentures, bearing interest at the rate of 4 per cent. per annum for five years, as the property cannot be expected to become productive for some little time.

They have also to report that since your last meeting they have renewed the contract for lighting the public lamps in the company's district of St. Marylebone for a further term of three years from the 1st of January last, upon the same terms and conditions as the last contract.

That the existence and responsibility of the several sureties to all bonds for the performance of offices of trust under the company have been inquired into, and new bonds ordered to be taken where necessary, agreeably to the 8th bye-law.

That, pursuant to the provisions of the Act, four directors and one auditor go out of office by efflux of time, and, being eligible, offer themselves for re-election.

That they recommend that a dividend for the half year ending 31st of December last be declared, at the rate of 45s. per share upon the old shares, and 13s. 6d. per share upon the new shares, less income-tax, and that the same be payable on and after this day.

In conclusion, your directors regret much to have to announce the death of your late most excellent accountant, Mr. John Mark, which lamented event took place in January last, after a faithful service of thirty years.

The SECRETARY having read the statement of accounts,

The CHAIRMAN rose and said: Gentlemen,—It is now time to move the reception of this report and the accounts which accompany it. It is less

brilliant, perhaps, than those which we have been accustomed to read in former days, but your directors think that, under existing circumstances, it is satisfactory. The report commences by mentioning the existence of a committee to inquire into the lighting of the metropolis with gas. It has been tedious, tiresome, and very expensive, I am afraid, and as yet it has tended to no good result. A year ago I stated to you that the various gas companies in London had divided the metropolis, so as not to interfere with each other's business. The advantage to the public was then stated as well as the benefit to ourselves. Some little dissatisfaction was expressed by a few persons, and there are some that always will feel that the want of competition is an unmitigated evil. Perhaps they may have feared oppression; but every one knows that competition cannot last for ever, and that the competitors must some time or other find out that the public are those alone who benefit by it, while they themselves are materially injured, and then the competition must end in some peaceful arrangement. This feeling of the want of competition no doubt would very speedily have worn out, if it had not been for the unnecessary interference of a certain description of persons who are always looking out for some employment or other, and who will promote agitation as long as it can be made beneficial to themselves. (Applause.) I really believe that we are indebted to this class of persons alone for this inquiry. Five years ago, when we went to Parliament for power to increase our capital, the power was given us on certain conditions, which conditions were very fully discussed at the time, and the principal of which was, as I have stated in this room, that we should be confined to a dividend of 10 per cent., and, if the profits of our trade allowed us to divide a larger profit, that was to be given to the public in the shape of a diminution in the price of gas. We were likewise confined to a maximum price per 1000 cubical feet of 6s., and we were likewise confined to a minimum illuminating power of gas of 12 wax candles. We thought it was rather inconsistent with the maxim of free trade that we should be tied up in this way when we were in competition with another company in the same ground, not under any restrictions at all. (Hear, hear.) We, however, thought that the terms were equitable, and were in themselves calculated to protect us and protect the public, and, therefore, we cheerfully assented to them, and more especially because they had been much discussed by the representatives of the different parishes, who had all agreed to them; so that we might fairly have considered ourselves as having made a contract with the public on these terms. Many of those parishes are now our opponents in this committee. I certainly thought that, these conditions having been inserted in our Act of Parliament and made part of the law of the land, would have been the basis of the new legislation, and if that had been so everything would have been soon settled. However, I think it did not answer the purpose of these delegates to have the matter concluded so soon, because they liked very much better to have a large purse to feed upon, and consequently they will not suffer the thing to die if possible. But the hardship of it is, that the money is derived from the pockets of the parishioners, and many of us in this room may be said to be contributing to a fund for our own destruction. The point in dispute seems to be, whether we are to be confined to a maximum price of 4s. 6d., and an illuminating power of 14 wax candles. Of course an illuminating power of 14 wax candles will cost us a good deal more to make than if we were confined to 12; and the result will be that people will consume less of it, and we shall be paid for a less quantity of gas. I think I cannot conclude these observations better than by just reading a paragraph from the report to this effect:—"Your directors repeat that, so far as this company is concerned, they have no fear of the result of the inquiry, should it be renewed in the new Parliament." I think we may say no more about that at present. I will now draw your attention rather to the finances, which bear somewhat on these observations. In the autumn of 1857 we declared a dividend of 7 per cent. That absorbed £28,500 to pay it. In the spring following we paid an 8 per cent. dividend, and that absorbed £32,500. In the following autumn we declared a 9 per cent. dividend, and that absorbed £36,500. On this occasion we declare likewise a dividend of 9 per cent., but that absorbs £38,000, because we have a larger amount of capital to pay upon. We are working now at a price of 4s. 6d. per 1000 cubic feet, and we have been particularly fortunate in an increase of our rental to the amount of £10,000, while we have sold our coke very well, and have bought our coal advantageously. With all these advantages, we are just able to pay a dividend of 9 per cent. on our share capital, and to carry over £2360. Now, that is really not much margin, and supposing war, a very mild winter, an alteration in the value of money, or any of those contingencies which belong to works spread over a large surface of ground, it surely is not a fair thing to limit us in the maximum price of our gas to that which barely carries us through under existing circumstances. (Hear, hear.) I am quite sure that that will be the view taken by the Legislature, and that we shall have that justice done us which we have a right to expect. I hope the legislation will be on the basis agreed upon by the public themselves five years ago, and that things will go on comfortably. This has not been a fortunate year, but rather a troublesome year for gas companies. An attack has been made on the City Gas Company, with a view to annihilate it. That attack has not been successful, and as good sometimes comes out of evil, it may be satisfactory to you to read the evidence given on that occasion, for I think it appears incontestibly that gas-works can be carried on in the midst of a dense population without producing any nuisance at all. We have been likewise attacked by a company intending to rival us in lighting the parish of Marylebone. A full account of that is given in the JOURNAL OF GAS LIGHTING. The locality of these works was to be Greenford, nine miles from London. The capital of the company was to be £250,000, in shares of £1 each, 2s. 6d. to be paid as a deposit. They undertook, in their prospectus, to light London at 4s. 6d. per 1000 cubic feet. That, of course, was no temptation, and therefore they reduced their price to 4s., and I suppose they would have reduced it still lower to gain their object. Their engineer has stated that at 4s. per 1000 cubic feet he would ensure them a profit of more than 8 per cent. When we recollect the enormous amount of our business which enables us in this wide district to pay the dividend we do, it is absurd to suppose that he could have considered the question properly. I undertake to say that any company carrying on only one half of our business could not pay any dividend at all; and you can well understand how long it would take a company to accumulate the business which we have been forty years in getting together. (Hear, hear.) The solicitors of this new company were Messrs. Charlton and Greenway, and I must do Mr. Charlton the justice to say that he gave his evidence before the committee in a manner that you would expect a respectable solicitor to do. He stated that there were three promoters of this concern, of the names of Sutton, Howard, and Holmes; that each of these gentlemen was to receive £1000 for suggesting the thing—("hear," and a laugh)—that there were to be nine directors, each of whom had bargained for £2 for each attendance, and the chairman was to have £4. The qualification of these directors was £50, and eight of these gentlemen had paid their shares in full, whilst one had paid a deposit of half a crown. (A laugh.) Those gentlemen have been sitting from December to the present time, so that probably they have not been much out of pocket by the transaction. (Hear, hear.) The engineer was Mr. Kirkham. He was an old servant of this company, who had been with us a great many years, and he was treated with that consideration which gentlemen are likely to treat servants with who are doing their duty. However, his first act was to turn against us, and to assure the public that this was a good and fair investment. Mr. Charlton stated in his evidence that he was perfectly ignorant of the three promoters and of the nine directors, but he knew that two only lived in the parish. He knew nothing about them or about their respectability; he did not know what their funds were; whether they had any bankers; or anything about it. I will not say anything as to a solicitor committing himself in that way, because that is his own affair; but I should have great distrust in investing my money where there was a management such as that, for you would expect the guiding prudence of the whole company to be in the solicitor. Mr. Kirkham gave his evidence, and he stated, no doubt, that it would be a very profitable concern, and so on. But it was necessary, likewise, to have some more evidence about the finances of the concern and the wants of the borough. The secretary, Mr. Daniels, was brought forward to speak to the finances. He said he had been secretary only a fortnight; he knew nothing at all about them; he had not seen any of their books; and did not know whether there was £100 in the bank, or anything at all. He said that they had canvassers about the borough to induce people to take shares, and that for every share they got taken they had 6d.; that they had succeeded in getting forty shares taken, and he had paid forty sixpences. We asked what had become of the forty half-crowns, which he did not know. When asked upon what authority he paid the sixpences, he said he paid them. (A laugh.) If a secretary can pay away forty sixpences without any voucher at all, I think such a concern will not be very prosperous. (Hear, hear.) The next point was to prove the wants of the parish, and for that purpose they produced the best evidence they could get, and there were several builders in a small way who said competition was wanted. A much more important person examined was Mr. Nicholay, a most respectable tradesman in Oxford Street. He is a vestryman of the parish of Marylebone—one of their most esteemed members, and I believe admired orators. The evidence he gave was to this effect—that competition was desirable; that everybody wanted it; that it would be beneficial to the public and beneficial to the company; that it would be beneficial to the company, because it would reduce their price from 4s. 6d. to 4s., and that there would be an enormous increase in the consumption of gas in consequence. He was asked whether it would make £5 a year difference to him. He said, "Yes, a great deal more." £5 was rather too little for a first-rate tradesman in Oxford Street. He said it would produce £25 a year profit to him by a reduction of 6d., upon which Mr. Burke pointed out to him that £25 in that way represented 1,000,000 cubic feet of gas. Of course he was a good deal staggered when he found that he had made an assertion that he could not justify; and it is, no doubt, a lamentable thing that respectable gentlemen will suffer their prejudices to carry them so far, when they are on their oath, as to state that which is utterly void of foundation. Of course such a respectable gentleman as Mr. Nicholay ought to have been much more cautious than to have ventured on an assertion of that sort, which the least consideration would have told him was utterly out of the question. (Hear, hear.) I have dwelt much longer than is my wont on these observations; but I have only one more to make, which I assure you I make in a very different feeling. It is to call your attention to the last paragraph in this report, which announces the death of Mr. Mark, who had been thirty years your most faithful and excellent accountant, and I believe many gentlemen present will bear testimony to the urbanity and civility of that gentleman. (Hear, hear.) I have only to thank you for your patience, and to move "That the report now read be approved and entered on the minutes."

The motion having been seconded, resolutions adopting the report and accounts passed unanimously.

A PROPRIETOR inquired whether it was the intention of the directors to call up on the new shares?

The CHAIRMAN stated that they would stave off that as long as possible, and in all probability they would not make a call before July.

The PROPRIETOR said he would much rather pay his money. (A laugh.)

A resolution authorizing the payment of a dividend of 45s. per share on the old shares, and 13s. 6d. on the new shares, less income-tax, passed unanimously.

The retiring directors and auditor were re-elected.

A vote of thanks to the chairman and directors, suitably acknowledged by the chairman, passed unanimously, which closed the proceedings.

WESTERN GASLIGHT COMPANY.

An Extraordinary General Meeting of the Western Gaslight Company (Limited) was held at the Offices of the Company, 28, Argyll Street, Regent Street, on Thursday last, the 21st inst.—VANDELEUR BENJAMIN CRAKE, Esq., one of the directors, in the chair.

The advertisement convening the meeting was read, the seal of the company was affixed to the register of the proprietors, and the accounts and following report were laid before the meeting:—

The directors beg to lay before the meeting the audited statements of account, showing the result of the company's working for the half year ended Dec. 31 last.

The increased demand for gas in the rapidly extending districts in the west of London has occasioned an excess of gas and meter rental over the corresponding six months in .857 amounting to £3500

The directors have, subject to the approval of the shareholders, determined to appropriate £2000 annually to meet the dilapidations of the increased plant, instead of £1800 hitherto reserved.

After setting aside, therefore, £1000 for this purpose for the past half year, and paying all charges, the sum standing to the credit of profit and loss, including the balance of £223. 13s. 5d. brought forward from the half year to June, 1858, amounts to £8258. 14s. 8d. Out of this sum the directors recommend the meeting to declare a dividend of 7s. per share, being at the rate of £7 per cent. per annum, free of income-tax, leaving a surplus of £1112. 18s. to be carried forward to the next account.

The directors also submit to the meeting a resolution confirming, in accordance with the notice, the resolutions respecting the capital of the company, unanimously passed on the 3rd of February last. On the confirmation taking place, the directors will lose no time in offering to the shareholders the 10,000 "New B Shares," on the terms specified in the resolutions authorizing their issue.

The board have to direct the attention of the shareholders to the special services rendered by Mr. Barber in his capacity of secretary and solicitor, in connexion with the districting arrangements, and they strongly recommend that a suitable acknowledgment should be made by voting him a sum at the discretion of the shareholders, at the present meeting.

The CHAIRMAN, in moving "That the directors' report and accounts now read be received and adopted," said he regretted the absence of Mr. Russell, the chairman of the board, who was at the present time attending to his electioneering duties in Ireland, as also the absence of their deputy-chairman, Mr. Edwards. These gentlemen had rendered very valuable and important services to the company, and it was gratifying to him to be able to state that the best feeling possible prevailed amongst the members of the board at which for the last ten years he had had the honour of a seat. The dividend which the directors now proposed to declare was, as stated in the report, 7s. per share, or 7 per cent., free of income-tax, and he thought that that dividend could not fail to be satisfactory to the proprietors. The in-

crease which the directors had thus been enabled to propose was mainly attributable to the increased rental arising from the rapidly extending district lighted by the company. He reminded the proprietors, however, that the rate of dividend already paid would, if spread over the whole period of the company's existence, yield an average only of something more than 1 per cent. The sixth paragraph in the report referred to the services of their secretary in reference to the recent districting arrangements, and the present meeting were invited to consider that subject. As he (the chairman) had taken an active part in those arrangements, he could speak personally as to the valuable assistance rendered by Mr. Barber, to whom, indeed, he attributed entirely the success with which the districting had been finally arranged. (It was understood that Mr. Barber had not made any professional charges for conducting these arrangements, beyond the costs out of pocket.)

The motion having been adopted, the following resolution was also agreed to:—"That, on the recommendation of the board, a dividend be, and the same is hereby, declared for the half year ended the 31st of December last, of 7s. per share, being at the rate of £7 per cent. per annum (free of income-tax), to be paid to the shareholders now appearing on the company's register."

Mr. R. A. Gray alluded to the services rendered by the directors, and expressed an earnest hope that the chairman of the board, Mr. Russell, would again be returned by his constituency, so as to be able to represent, as he had done in past times, the interests of the gas companies, when subjects affecting them came before Parliament. He concluded by moving that the remuneration to the directors be increased from £800 to £1000 a year.

Mr. Waugh thought that notice should have been given to the proprietors of a motion of this kind, and, under the circumstances, urged that the consideration of it should be deferred.

Mr. Gray reminded Mr. Waugh that this was a proposition which the directors could not themselves originate, and therefore, as a matter of course, the subject must be taken in hand by the meeting.

Mr. Waugh inquired whether it was not customary to send each shareholder a copy of the accounts.

The Secretary said that the accounts were printed only once a year, when a balance-sheet was prepared, showing the entire year's working.

Mr. Waugh expressed himself quite satisfied with these explanations.

It was then resolved—"That the allowance to the board of directors be increased by £200 per annum." Also, "That the resolutions respecting the capital of the company, unanimously passed by the extraordinary general meeting held on the 3rd of February last, be confirmed."

Mr. Makins proposed the following resolution:—"That this meeting do cordially adopt the recommendation contained in the sixth paragraph of the report, and, in testimony of their appreciation of the special services recently rendered by Mr. Barber, both as secretary and solicitor to the company, do hereby approve of the sum of five hundred guineas being presented to him out of the company's funds." In doing so he said he had known Mr. Barber for many years, and had had frequent opportunities of watching the progress of the negotiations which had led to the arrangements referred to. He was, therefore, in a position to testify to the difficulties of the task which their secretary had had to perform, and the large amount of patience and perseverance required for conducting it to a successful termination. Mr. Barber had been the medium of communication between all the companies, and he (the speaker) considered that it was entirely owing to his exertions that an arrangement likely to be so beneficial to the companies had been effected.

Mr. Sutton, as one of the original shareholders, had known Mr. Barber a long time, and could testify to the progress which this company had made since he became connected with it. Although at previous meetings of this company he (the speaker) had had occasion to find fault, and perhaps had been thought somewhat troublesome, he was happy to be able now to show that when he had the opportunity he was equally ready to express his approval. He heartily assented to the resolution, because he believed that with men as well as with goods, if you want a good article you must be willing to pay a good price for it. He was always prepared to advocate the principle of good officers being liberally remunerated.

Mr. Gray very cordially supported the resolution.

Mr. Aird spoke of his personal acquaintance with Mr. Barber, and his knowledge of the valuable services he had rendered in carrying out the districting arrangements, the idea of which was under consideration, and mentioned to him (Mr. Aird) as far back as four years ago. He had had considerable experience in connexion with gas companies, and knew well the spirit of rivalry which formerly existed amongst them. He considered, therefore, the accomplishment of districting was a herculean labour, and he highly complimented Mr. Barber on having brought it to so successful an issue.

Mr. Besley thought that Mr. Barber's merits should be recognized beyond the limits of this company, in the shape of a testimonial from all the companies.

The Chairman said the question of remuneration was now under consideration by the other companies, and as Mr. Barber had managed the business with so much tact and ability he hoped it would be satisfactorily settled.

The resolution was then put and carried unanimously.

Mr. Barber (who had been absent from the room during the discussion, and who was now informed of the vote just adopted) said he begged to thank the proprietors for their kind appreciation of his services. The sum which they had voted him was much enhanced in value by the unanimity with which it had been awarded, and the very handsome manner in which the chairman had announced it. He might say that, owing to the difficulties in which the company were involved prior to his connexion with it more than ten years ago, the management of its affairs had entailed a more than usual degree of labour and anxiety. But he also felt bound to say, that that anxiety would have been much greater if it had not been for the confidence, courtesy, and good feeling which had been shown towards him on all occasions by the directors and shareholders. When he thought of the many years during which the shareholders patiently and confidingly stood by the concern, he for one was not satisfied that it should remain even in its present prosperous condition, and if any exertions on his part could increase that prosperity, they should not be wanting so long as he continued in the office he had the honour to hold.

A vote of thanks to the chairman and directors for their attention to the affairs of the company terminated the proceedings.

SURREY CONSUMERS' GAS COMPANY.

The Half-Yearly General Meeting of this Company was held at the Bridge House Hotel, Southwark, on Thursday, the 14th inst.—Mr. T. Pocock in the chair.

The usual preliminaries having been gone through, the annexed report and statement of accounts were presented.

In submitting the balance-sheet and accounts for the past half year, your directors have the satisfaction of stating that the affairs of the company continue to present the same favourable aspects of steady improvement.

The gas rental for the half year ending at Christmas last, amounts to £19,173. 1s. 6d.; which, with the sum of £19,738. 19s. for the previous half year, shows an aggregate rental, for the whole year, of £38,912. 0s. 6d., being an increase of £4812. 15s. 6d. as compared with the year 1857.

The profit and loss account exhibits a net balance of £5399. 7s. 11d. available for dividend. The directors recommend that a dividend at the rate of 8 per cent. per annum, for the half year ending at Christmas, be declared, free of income-tax: this will absorb a sum of £5017. 0s., and leave a balance of £382. 1s. 11d. to be added to the credit of the revenue account.

The directors have transferred from that account a further sum of £2000 to the credit of the works on account of depreciation.

The time having arrived when it has become necessary to enlarge the manufacturing power of the works to meet the requirements of the public service, the directors have, in order to raise the requisite capital for the purpose, decided upon issuing the remainder of the unappropriated shares; and in doing so they propose, in the first instance, to offer them at par rateably among the present shareholders: the calls will be made at such times and in such amounts as the requirements of the company demand, and of which sufficient notice will, from time to time, be given.

The extensions which are more immediately urgent, and will have to be completed before the ensuing winter, are the erection of additional retorts, and the substitution of a trunk main of larger capacity instead of the one originally laid down for conveying the gas to the western parts of the district; the old main to be taken up will be transferred to Deptford, and laid down to supply the gasholders in that district.

As much inconvenience has been felt for the want of room for storing the gas in sufficient quantity to supply the districts of Deptford and Hatcham, more particularly in the mid-winter months, and as that inconvenience will necessarily be augmented as the consumption of gas increases, the subject of providing an additional gasholder for those districts is also under the consideration of your directors.

The directors who retire from office at this meeting are Mr. Benjamin Duvall and Mr. William B. James. The latter gentleman now resigns his seat at the board, and it therefore will devolve upon the meeting to elect some other shareholder duly qualified to supply the vacancy. Mr. Duvall, being eligible, offers himself for re-election, and the directors recommend him accordingly.

Mr. Nathaniel J. Powell, the auditor, also retires at this meeting, and, being eligible, again offers himself for re-election.

Dr. PROFIT AND LOSS ACCOUNT, FROM JULY 1 TO DECEMBER 31, 1858. *Cr.*

To direction and audit		£ 415	15	0	
Interest		970	4	1	
Salaries		162	13	2	
Charges		100	19	8	
Repair of meters		61	2	6	
Stationery		28	8	7	
Paving		123	3	3	
Rents and taxes		195	1	5	
General repairs		51	2	4	
Balance		5,399	7	11	
		£7,507	17	11	
By amount due and to be paid by Mr. Croll for rental					£4,775 0 0
Interest upon capital expended upon works extensions					2,729 17 11
Transfer fees					3 0 0
					£7,507 17 11

Dr. BALANCE-SHEET, TO DECEMBER 31, 1858. *Cr.*

To subscription capital					£69,870	0	0
New shares, 1st call	£11,288	0	0				
Ditto 2nd call	11,288	0	0				
Ditto 3rd call	11,288	0	0				
Ditto 4th call	11,288	0	0				
Ditto 5th call	11,288	0	0				
	£56,440	0	0				
Amount unpaid	638	0	0				
				55,802	0	0	
Creditors on bond	£34,500	0	0				
Ditto on loan	7,000	0	0				
Ditto, sundry	2,310	7	8				
				43,810	7	8	
Balance of revenue account	£ 796	18	8				
Ditto of profit and loss	5,399	7	11				
				6,196	6	7	
Dividends unpaid				109	14	0	
				£175,788	8	3	
By amount expended on works to June 30, 1858				£144,438	12	1	
Less amount written off for depreciation				2,000	0	0	
				£142,438	12	1	
Expended this half year—							
Works extensions				1,035	8	2	
Meter-fixing				84	18	11	
Main-laying				22	11	6	
Service-laying				140	2	11	
						£143,721	13 7
Deptford Gas-Works						20,648	16 0
Offices				£1,428	13	10	
Office furniture and fixtures				275	16	3	
						1,704	10 1
Sundry debtors						8,178	14 1
Balance of cash account				£1,446	14	4	
Ditto of dividend account				88	0	2	
						1,534	14 6
						£175,788	8 3

The Chairman, in moving the adoption of the report, said he hoped that any discussion which might arise in the course of their proceedings would be conducted in a kind and courteous spirit, and that the manner in which their proceedings on this and all occasions was conducted would be such as to make the Surrey Consumers' Gas Company proverbial for propriety, and offer an example to all other companies in the metropolis. He asked their indulgence specially to-day, as he was labouring under indisposition, and was scarcely able to attend the meeting; and, also, because he anticipated that many questions would have to be proposed to the board which might lead to discussions. In reference to the report itself, he would merely state that it gave a very faithful view of the position of the company, and such an one as he trusted would meet with their approval. He could assure them that it was the study of the directors to conduct the business to their satisfaction, remembering that the wheels of time quickly brought round the half-yearly periods, when they were called upon to render up their accounts. Their anxious wish, therefore, was that their proceedings might always be so con-

ducted as to secure the benefit of their shareholders and the approbation of their customers, the public. The first item in the report referred to the gas rental, which he was happy to tell them was steadily increasing. The sums there stated were perfectly correct; they had been examined by the regular auditors, and certified by them. The directors having stated that the sum of £2000 had been transferred to the credit of the works on account of depreciation, called the attention of the proprietors to the fact that the time had arrived when an increase was needed in some parts of their apparatus, and that to meet the necessary expenses they proposed to issue the remaining unappropriated shares.

Mr. NICHOLSON inquired how many shares there were unappropriated, and what proportion they bore to the numbers already issued?

The SECRETARY (Mr. Boddy) said the total share capital consisted of 15,000 shares, of which 12,631 were issued, leaving 2369 unappropriated. These, apportioned as recommended in the report, would give about one in four to the present proprietors.

Mr. NICHOLSON was very glad to learn that £2000 had been carried to account of depreciation of works, because he was quite sure that, next to paying the proprietors a good dividend, the most satisfactory thing the board could do was to provide for the natural deterioration of the plant and stock of the company. That £2000 was of course taken out of surplus profits, but he wished to know how long it had been accumulating. The profits for the last year appeared to be about £10,400, and, in order to pay an 8 per cent. dividend, they required £10,000, so that there was only a balance of £400 applicable to the other purpose.

The CHAIRMAN said there was £390 balance for the last half year and about the same sum during the previous half, so that it took nearly three years to accumulate £2000. The proposed appropriation of shares would give about one in four to the proprietors, and the calls upon them would be made at such times and for such amounts as the wants of the company demanded.

Mr. NICHOLSON said the question was a very important one. The 2369 shares would yield a sum of £24,000, and the directors proposed to expend this large sum of money. He wished to know whether the chairman would pledge his character as a gentleman, and his knowledge as chairman of the works, that the proposed extensions were likely to yield such a revenue as would pay an 8 per cent. dividend upon the outlay.

The CHAIRMAN admitted that it was a very important question, and he would not have come forward to recommend this outlay unless he had felt confidence, from information which he could gather, as well as from the attention which he had paid to gas matters during the last eight or nine years, that it would be remunerative. He confessed that when he first became connected with this company he knew only as much as a child five years old about gas matters; but he had always made it a rule, whenever he undertook any business, to give the greatest possible attention to it, so as to become master of all its details, and from this fact he was prepared to give an answer to the question which had been proposed. When it was reported to the board that this large outlay was necessary, he and his brother directors immediately began to inquire what equivalent there would be for it, and whether there was a prospect of being able to keep up an 8 per cent. dividend while laying by something for a reserve-fund. That assurance they had received. It would take too long to go into all the particulars, but he might inform the meeting that the extensions consisted chiefly of two matters —increasing the amount of their retorts in order to meet the demand for gas in the winter season, and taking up some of the small mains, and replacing them with larger at Hatcham.

Mr. CROLL said, perhaps he might be allowed to state that the amount of capital required for extensions was small compared with the amount which the number of shares they were now talking about would yield. The amount required for the whole of the extensions that were contemplated would not exceed £8000, and not even so much as that this year. As regarded the increased rental to the company, he had no hesitation in saying that by this time next year the company should have to receive not only 6 per cent. upon the additional outlay required, but also the additional £900 which the company were entitled to under his contract when the gas rental exceeded £42,000. He had no hesitation in saying most positively that it would be so.

Mr. NICHOLSON inquired whether that would make 8 per cent. upon the outlay?

Mr. CROLL said it would not pay 8 per cent. upon the £24,000, and he presumed that it was not intended to call up all that amount at once, but only so much as was really required. They would issue the whole of the shares, and make calls for the sums necessary to meet the outlay. Supposing, for instance, £8000 was required for the extensions, he would have 6 per cent. interest to pay upon that sum; and in addition to that, he said that in consequence of the increase in the rental, he should have another £900 to pay according to his contract.

Mr. KERRY said, if £8000 only was likely to be required, he thought it would be better to authorize the issue of only £10,000 worth of shares, instead of £24,000, and that they should be all paid up in full.

The CHAIRMAN said he could not agree with the honourable proprietor in that proposal.

Mr. DUVALL said there was a debt of £7000 due to the bankers for a loan which was obtained nine years ago, at 2½ per cent. The directors had had that responsibility upon their own shoulders hitherto, but they did not wish to have it continued. Their worthy chairman had made one little mistake when he said he had looked over the matter, and found that the proposed outlay would pay 8 per cent., or he would not have recommended it. That was not the only consideration. If it would not pay anything, they were bound to give their customers satisfaction, and unless the mains were increased, they would not be able to do it. There was a compulsion, therefore; it must be done whether it paid a profit or not. At the same time, having looked into the matter and studied it carefully, he found that, instead of a disadvantage, it would be a gain to the company.

Mr. NICHOLSON inquired whether the money borrowed at 2½ per cent. was upon debentures or not?

Mr. DUVALL said it was not; it was upon the note of hand of the directors. It was not lent for any period of time, but they had had no difficulty in renewing it.

Mr. NICHOLSON thought that that fact was an evidence of the good credit in which the company stood. After the explanations received, he thought there could be no doubt of the propriety of issuing the whole of the unallotted shares, and making the calls upon them as required. As far as he was concerned, if any gentleman present did not like his shares, he was willing to take them off his hands.

Mr. BERESFORD said he regretted that he could not comply with the chairman's request to be indulgent. He thought the speech which the chairman had made was ominous of evil. On all previous occasions he had had something pleasant to tell the shareholders, but not a single word had he uttered to-day in behalf of the interests of the company, except that their rental was improving. Now, he was prepared to show that the very first clause in the report set out with a delusion. It said: "Your directors have the satisfaction of stating that the affairs of the company continue to present the same favourable aspects of steady improvement." He would ask the shareholders whether they considered it a steady improvement when their profit for the last half year was less than for the previous one. For this half year it was £5399, and for the last £5445. He admitted the difference was small, but it was an indication of retrogression, and therefore he objected to this first paragraph of the report. If he went to the second he found it stated that there was an improvement in the rental; but that, as far as the shareholders were concerned, was not of the slightest benefit. He was well aware of the arrangement which existed between the company and Mr. Croll, and he thought that no man was better entitled to the advantage than that gentleman.

The CHAIRMAN: The rental is progressive, and we shall have the advantage by-and-by.

Mr. BERESFORD: It must come up to very much more before we do.

Mr. CROLL: I unhesitatingly pledge myself to the shareholders now, that when you meet the proprietors next year, you will have the £900, from the way the rental is going on.

Mr. BERESFORD said he would make a note of that statement. He would ask the directors whether he had not established his position when he stated that the first paragraph in the report was a delusion, as far as the steady improvement was concerned?

Mr. DUVALL: No delusion at all.

The CHAIRMAN: It is a statement of plain facts, and though there may be a small variation between last half year and the present, it can only be in consequence of some little item of outlay, which has reduced the amount. Remember that we cannot break the arrangement which exists with Mr. Croll; we cannot make the wheels of time roll faster than they do, to bring that engagement to an end. I say the gas rental is increasing, and when Mr. Croll's contract is at an end, we shall come into possession of a large gas rental; but we must bide our time.

Mr. BERESFORD: Then I say that the improvement relates simply and solely to the gas rental; am I am right there?

The CHAIRMAN: Precisely; and the improvement of the works.

Mr. CROLL: The farm is improving.

Mr. BERESFORD said the directors proposed to divide an 8 per cent. dividend again to-day. On previous occasions he had raised his voice against the payment of such a dividend. He believed and he thought he should be more generally supported than he had hitherto been, when he told them at some future day, if they acted on this principle of only carrying some £600 or £700 a year to the contingent-fund, instead of making a much larger reserve, they would have to repent it. He had told the directors that he was anxious to see them acting upon the safe principle which they would do in reference to their individual affairs, and write off a proper amount to a suspense account; and he now told the proprietors that they ought to be satisfied with 6 per cent., and invest the remainder of their profits, so as to have a fund to put their works in proper order when they came into their own hands. He based his remarks mainly upon the report of Mr. Hawksley presented at a former meeting, in which there was not a single clause in reference to the state of the works which was not expressed in terms of great doubt. Mr. Hawksley did not say this or that was in a bad condition, but he says, "it appears" so. If he (Mr. Beresford) therefore stood alone, he should move an amendment to that part of the report, and should propose a 6 per cent. in lieu of an 8 per cent. dividend. At every meeting he was convinced more firmly of the absurdity and suicidal policy of spending all their money upon dividends, instead of appropriating some portion to a reserve-fund. They could not call upon Mr. Croll to provide for anything more than ordinary wear and tear, and therefore they should have a sum of money to fall back upon when the works came into their possession. The next clause referred to the proposed extension of works, and he must ask with reference to that, what steps the directors had adopted, and upon whose report they had come to the conclusion that these extensions were necessary? He would ask them how they had ascertained the cost? who were the parties they had engaged to do the work? or whether they had entered into any contract upon the subject? He thought the shareholders were fairly entitled to that information. He made these inquiries because he found that Mr. James had left the board in a very sudden way, and he had failed in ascertaining, by personal application to that gentleman, what were the reasons for his retirement. How was it, then, he would ask, that Mr. James, who was received with open arms by the chairman and directors last year, had so suddenly left his post?

The CHAIRMAN: You asked a previous question as to how we came to the conclusion that the extension of works was necessary. We have arranged, and intend to have the works done by tender in the best and cheapest manner possible. No private individual is to have them; they are to be put up to competition, so that there will be no favouritism to any one.

Mr. BERESFORD: You are the last man I should suspect of anything of that kind. How have you arrived at the amount required to be laid out?

The CHAIRMAN: That is easily arrived at. We know how many yards of pipe have to be laid down, what the size of it is, and what the price per yard. It is as easily calculated as a rule-of-three sum.

Mr. CROLL: As an approximation?

The CHAIRMAN: Yes, within £300 or £400.

Mr. BERESFORD: Then I suppose it is upon Mr. Croll's estimate?

The CHAIRMAN: No; there are gentlemen at this board who are quite competent to know; we do not take Mr. Croll's word for it.

After some remarks by Mr. LAUGHTON and another director in explanation,

Mr. BERESFORD concluded his observations by moving as an amendment that the dividend for the last half year be at the rate of 6 per cent. only.

The amendment was not seconded.

Mr. KERRY made some inquiries in reference to the mode of stating the accounts, which were satisfactorily replied to by Mr. Powell, the auditor, and the secretary.

Mr. BLAKE, referring to the remarks which had been made, said he thought the shareholders were fighting about the crumbs which fell from the table, totally disregarding the loaf that stood upon it. The main thing they had to consider was the large amount asked for by the directors, who proposed to draw from their pockets £24,000 without, to his mind, any satisfactory explanation being given as to where the interest was to come from. It was true that Mr. Croll told them he had not a doubt—not a shadow of a doubt —that they would be paid interest upon it, and would also receive his £900 by this time twelvemonth. He was glad that a gentleman present had taken a note of that statement, for it was sometimes convenient to be able to fix a gentleman who made predictions so boldly as Mr. Croll had done. The proprietors had been waiting in expectation that their income would increase; and not only in expectation, but ardent hope, because, unfortunately, they could not benefit the least in the world by that increase, although their expenses were going on increasing, until the annual rental reached £42,000. He had known gentlemen in that room, as bold as Mr. Croll, who had pledged themselves that

during the continuance of his contract that amount would never be seen, and thus there was one pledge put against another for what it was worth. It was a matter of very serious consideration to this meeting before they consented to the large sum of £24,000 being given into the hands of the directors, because there was no proof whatever that out of the capability of increase in the district which was supplied by the company they would realize sufficient to pay 8 per cent. Moreover, it would be remembered that one gentleman at the board had told them that the directors meant to repay a large loan to the bank which had been borrowed on the easy terms of 2½ per cent., which sum for the future would have to bear the higher rate of interest. These were very serious matters to entrust to the directors, unless the proprietors had every confidence not only in their good intentions, of which he had not the slightest doubt in the world, but also in their capacity to deal with the state of things around them. A remark had been made upon one matter, to which also he must refer, and that was the sudden withdrawal from that board of a gentleman whose ability and whose readiness to give aid and counsel to the directors in all difficulties which might surround them were of singular worth to the company. Indeed, it was so estimated by the meeting at which he was appointed, that his election was carried by acclamation. He alluded to Mr. James. He (Mr. Blake) had the honour to propose that gentleman, and he did it on the ground that he believed he possessed special qualifications for the office. He had been solicitor to the company; he knew all its secrets, and all the circumstances of its history, and was fully competent to advise them; and therefore it was not desirable that the meeting should accept his resignation if it was possible to avoid doing so. He thought it desirable that the terms in which that resignation had been tendered to the board should be stated, and he begged therefore that Mr. James's letter might be read in order that the proprietors might be perfectly satisfied that there was nothing hid from them that it was for their interest to know.

The CHAIRMAN said Mr. Blake had apprised him of his intention to call for Mr. James's letter, and therefore he had, with the concurrence of his brother directors, instructed the secretary to bring it to the meeting.

The SECRETARY then read the letter, which was as follows:—

Dear Chairman,—The proceedings at the board last Thursday were such, that I have, after considerable reflection, determined to resign my seat as a director. Allow me in leaving to say, that I entertain every respect for the directors individually. I understand that my name will be brought before the next general meeting as going out by rotation; you will be pleased therefore to consider that I then resign my seat into the hands of the shareholders.

Yours most truly,

5, *Basinghall Street, March* 5. (Signed) W. B. JAMES.

Mr. BLAKE said he had given previous notice to the chairman that he should call for this letter, lest its non-production when required might lead to undeserved blame being cast upon the board. It would be seen from that letter that here was a gentleman whose zeal on behalf of this company no one could doubt for a moment, but who had been induced to resign his seat at the board from his inability to carry out faithfully the honest desires of his mind, and what his intelligence and knowledge pointed out as desirable to be done. There was something at the board which it was necessary the shareholders at large should be made acquainted with in order to administer to it a proper cure. He had no doubt, if so disposed, the chairman could enlighten them upon the subject without the shareholders being obliged to take the initiative, and he was sure there was nothing the chairman had so much at heart as that there should be the utmost cordiality and sympathy amongst all who were connected with the company, for the purpose of securing to the utmost the interests of all. He was not perhaps authorized to say so, but he was strongly inclined to believe, as he had pressed Mr. James to give him his reasons, and had been more successful in this endeavour than his friend Mr. Beresford, that there was something which ought to be stated. Mr. James had referred him to this letter, and he placed himself virtually in the hands of the shareholders. It was a question, therefore, entirely for them to consider, whether their interests should be well watched over, and if they were not incapable of being so well watched over when those who sought to do their duty honestly at the board found themselves thwarted in carrying out what they believed to be the proper course.

The CHAIRMAN said he hoped the honourable shareholder would keep to the same temper and spirit with which he set out, and not directly or indirectly impute motives of an improper character to any director on the board. If he did do so, let him mention names. He could not sit there as chairman and allow this to be done. If the honourable shareholder could prove a charge against any one of the directors for not doing his duty faithfully, and conscientiously, and honestly, let him speak out plainly. He desired to have everything above board, and nothing kept back; and therefore he called upon Mr. Blake to say whether he had a charge against one, two, or three of the directors, and if so, what it was.

Mr. BLAKE: The chairman knows perfectly well that I have no charge.

The CHAIRMAN: Then do not, by anything in your way or manner, seek to impress these gentlemen's minds with the belief that there is something going on at the board that is not fair, and honest, and candid to the shareholders.

Mr. BLAKE said it was not he, but the communication of Mr. James that would do it. It ought to awaken the shareholders to their own interests when a gentleman in that position found that he was no longer able to perform his duty at that board from the impediments that were thrown in his way.

The CHAIRMAN: Where does the impediment rest?

Mr. BLAKE said the chairman was better qualified to answer that question than he was.

Mr. NICHOLSON said it was quite clear that Mr. James disagreed with the directors on some question of policy,-but if the directors would assure the meeting that it was not so, but had reference to matters of detail upon which they had a perfect right to exercise their judgment and discretion, he thought the inquiry should not go further, as these matters were best left in the hands of the executive and their officers. If, however, it were otherwise, then, after the correspondence which had been read, they would be only doing their duty by stating to the shareholders the facts of the case.

Mr. DUVALL said he thought it now behoved him to state that this was a question of detail. There were certain improvements wanted on the works, such as building retorts, &c., and a committee was appointed to go into the expenditure. He (Mr. Duvall) was one of the members of that committee who, with three others, reported that those works were necessary and should be done, this being the time of year to do them. They put it as a resolution to the board that those works should be done, and there was only one dissentient to the proposal—Mr. James—who then said that he could not sit at the board, being in a minority. But he said—"Mr. Duvall, I do not back my opinion against yours as a business man; possibly you are right, but I cannot sit at the board, being in a minority."

Mr. CROLL: But he afterwards agreed to it.

Mr. DUVALL: And he said—"I shall not attend the meeting, nor make one remark, but simply tender my resignation."

Mr. NICHOLSON thought that that was a matter perfectly within Mr. James's discretion, but, if he had had any fault to find with the directors, it was his duty to come here and explain the facts to the meeting, so as to enable the shareholders, after hearing his statement and that of the board, to form a judgment thereon. Mr. Blake (who, he was sorry to see, had left the room) had attributed motives to the directors as though they had their own ends to serve, but surely Mr. James's letter did not justify such insinuations, because there were no reasons whatever assigned for the course which he had pursued. It really seemed to him as if some gentlemen in the room had come to the conclusion that there was something wrong because the chairman had bespoken their indulgence on account of labouring under severe indisposition. Now, though he (Mr. Nicholson) would have been glad to see the chairman in good health, the fact of his having a cold in his head did not affect the pockets of the shareholders, nor were they warranted in drawing a gloomy picture of the position of the company because the chairman had been imprudent enough to go out in the wet without his umbrella.

Mr. BERESFORD inquired what sum the company were empowered to raise by their Act of Parliment?

The SECRETARY: £150,000 of share capital, and £35,000 in debentures.

Mr. BERESFORD: You have already raised £169,000, and you now propose to raise £24,000 more, which will be considerably beyond the authorized amount.

The SECRETARY: No, because a portion of this new capital will be applied to pay off the £7000 loan.

Mr. BERESFORD asked permission to read a note received from Mr. James.

Mr. DUVALL objected that it had nothing to do with the meeting.

Mr. BERESFORD said he had pressed Mr. James for his reasons, and he had got this for an answer.

Mr. DUVALL still objected, but there being a call by several shareholders to have it read,

The CHAIRMAN, who said he did not wish to have anything suppressed, put it to the meeting whether they would have the letter read. The show of hands being in favour of the proposal,

Mr. BERESFORD read the letter, which was as follows:—

Dear Sir,—I have left out of good feeling to Mr. Croll, for I would not remain to fight Mr. Croll single-handed. The directors have left me entirely to fight Mr. Croll, and as I differed with them on important points, I have resigned rather than do so. I have had pleasant relations with Mr. Croll, and have been his under-sheriff; and it is only with reference to the affairs of this company that I differ from him; and because I am not supported by the directors, I resign. I can give no explanation, and my appearance will do no good to the interests of the company.

April 14. (Signed) W. B. JAMES.

The CHAIRMAN said it would be perceived at once that there was some misunderstanding between Mr. James and Mr. Croll, quite independent of the affairs of the company, and the board had felt that they could not possibly entertain the question of differences between these two gentlemen. They were not going to fight the personal battles of Mr. James. The matter did not belong to them as a board of directors. Their duty was to attend to the concerns of the company. If Mr. James and Mr. Croll could not agree, let them go outside.

Mr. CROLL would only say, in reference to the note just read by Mr. Beresford, that he was exceedingly sorry Mr. James had not made his appearance, and offered some statement in reference to himself, so that all might have heard it. As regarded the differences between Mr. James and himself, he had only to say this, that Mr. James attempted to import certain matters into the transactions of the company concerning him, and the directors came to a resolution that there was no reason for their being so imported, and he (Mr. Croll) held that resolution which was adopted by the whole board upon the subject. He did not wish to say a single word about it in any way, but would desire most earnestly to bury the past in oblivion, without saying one word about what he had done for Mr. James in any way whatever.

The resolution was then put and carried, and the dividend at the rate of 8 per cent., payable on and after the 25th instant, declared.

On the motion of Dr. LIDDELL, Mr. Duvall was re-elected.

Mr. DUVALL, in acknowledging his obligations, said that in reference to the dividend, he should rather have preferred it a little lower, but the directors felt they had a duty to perform to the shareholders, who were entitled to receive what the concern was able to earn. As the largest shareholder, it would have been a satisfaction to him to have money in their coffers to play with, but he was convinced that their affairs were in a prosperous condition, and that the sums they were about to expend would turn to the advantage of the company.

After some conversation, a resolution was adopted to the effect that it was advisable to fill up the vacant seat at the board.

Dr. HOPE inquired whether Mr. James was still eligible for a seat at the board? if so, he would propose that his resignation be not accepted.

Mr. BERESFORD seconded the motion.

Mr. DUVALL said it was of no use adopting it, as Mr. James would not accept the appointment. He had tried hard, but in vain, to get him back.

Mr. BRICKHILL proposed as an amendment that the Lord Mayor be appointed a director in the room of Mr. James.

Mr. EMMOTT seconded the amendment, upon which a lengthened conversation ensued in which Dr. Liddell, Mr. Newsom, Mr. Kerry, and others took part. Reference having been made to the company's Act, it was found that no election could take place at this meeting—the requisite notices by candidates for the vacant office not having been given. Ultimately a resolution was passed, recommending the directors, in the exercise of their power, to appoint the Lord Mayor in the same way as they had previously done in the case of Mr. James.

Mr. KERRY moved, "That in future notice shall be given to every shareholder whenever a vacancy takes place in the direction, except when such vacancy is occasioned by effluxion of time, and that no person shall be elected a director until six weeks after such notice shall have been given."

Dr. LIDDELL seconded the motion, and suggested several matters of arrangement in reference to the affairs of the company, upon which he thought by-laws should be adopted.

The CHAIRMAN said the proprietors must be guided by their Act of Parliament in regard to the mode of appointing directors, and he was of opinion that the resolution now proposed was repugnant to the spirit of that Act.

Mr. KERRY accordingly withdrew his motion.

The CHAIRMAN said that the directors had a code of by-laws in course of preparation which they would perfect, and submit to the shareholders.

Mr. Powell, the retiring auditor, having been re-appointed, the proceedings terminated with the usual vote of thanks to the chair.

THE COMMISSIONERS OF SEWERS AND THE CITY OF LONDON GAS COMPANY.—Mr. Deputy Christie, the chairman of the commissioners, accompanied by the Remembrancer, Mr. Haywood the engineer, Dr. Letheby, and Mr. Daw the clerk, had an interview with the Right Hon. C. B. Adderley, at the Privy Council Office, on the 15th instant.

THE NINETY-SECOND SECTION OF THE METROPOLIS LOCAL MANAGEMENT ACT.

CASE SUBMITTED TO THE SOLICITOR-GENERAL AND MR. BODKIN.

In the last sessions of Parliament several of the vestries and district boards constituted under the Metropolis Local Management Act, 1855 (18 and 19 Vic., c. 120), presented petitions to Parliament praying for an inquiry into the whole subject of the metropolis gas supply, and a committee of the House of Commons was accordingly appointed, towards the close of last sessions, for an inquiry into the gas arrangements of the metropolis. That committee made no report, and the committee has been renewed in the present session of Parliament.

The following are the leading allegations of the vestries and district boards upon which they founded their application to Parliament:—They allege that the companies formed for the purpose of supplying gas to the metropolis, are incorporated by a series of Acts extending from the year 1810 to the present time; that the Act of each company defines the limits within which the company is empowered to lay down pipes and supply gas; that several companies have thus obtained power to light the same district; and that in some instances as many as three, and even four, companies were competing in the same parishes. That it was presumed that, in consequence of the acknowledged competition thus existing between the various companies, Parliament had not imposed on the London gas companies the same restrictions as those which are invariably inserted in the Acts of provincial gas companies, who are usually the metropolists of the lighting in their respective towns. That the London companies at the present time are not under the operation of the Gas-Works Clauses Act—no maximum price (in most cases) is fixed for the gas which they supply, no standard quality of illuminating power is imposed, and no limitation of dividend is fixed. That in the beginning of 1857 negotiations were set on foot amongst the various metropolitan gas companies for an exchange of districts, and a withdrawal from competition in all places where one or more companies were competing; and that subsequently the whole metropolis has been parcelled out amongst the various companies, who have thus established everywhere a complete monopoly.

Several of the vestries and district boards conlesced for the purpose of appearing before the parliamentary committee, in order to establish the truth of the foregoing allegations and to impose restrictions and conditions on the metropolitan gas companies, and for that purpose they appointed a certain number of delegates or managers (one, we believe, from each parish or district) for prosecuting the inquiry before the committees of both Houses, with a view of proving the abuses alleged to exist and the restrictions which ought to be imposed on the gas companies, and have incurred, and are incurring, considerable expenses, which embrace, or ought to embrace, the employment of counsel before the committees, of professional and other witnesses, and a number of other expenses unavoidable in an inquiry of that nature.

It is contended by the vestries and district boards that the expenses of the inquiry are being incurred with the express object of saving a considerable portion of the amount now paid for lighting the public lamps in the metropolitan districts, and, further, that the restrictions which the parishes seek to impose on the gas companies will not only protect the private consumer of gas as to price and quality, but will largely affect the public lighting in both these important particulars.

Several of the parishes and boards of works have subscribed largely for the purpose of carrying on these proceedings; for instance—

The Boards of Works for the Westminster district, on the 14th of May, 1858, resolved—

That it is expedient for this board to unite with the other metropolitan vestries and district boards in seeking to impose restrictions and conditions on the metropolitan gas companies; and that, with a view of meeting the expenses of the parliamentary inquiry, the committee appointed on the 23rd of October last be empowered to state, at a meeting of delegates from the various vestries and district boards, that this board is willing to contribute its fair proportion to such expenses to an extent not exceeding £200.

In like manner the vestry of St. James's, Westminster, on the 2nd of December, 1858, resolved—

That a sum not exceeding £200 be granted by this vestry towards the expenses of the parliamentary inquiry into the existing means and regulations for supplying gas for public lighting now being conducted by the delegates appointed by the various vestries of the metropolis.

The parliamentary committee appointed this session, after having sat for several days, and heard counsel, and received evidence, have separated without coming to any conclusion; and it is expected that in the next session another committee will be appointed, and heavy additional expenses incurred.

The parish vestries and boards have already (it is understood) expressed their determination to follow up the inquiry, and the vestry of one parish have, it is said, expressed their determination to subscribe £1000 out of the rates in furtherance of the common object.

This heavy expenditure has attracted the notice of many of the ratepayers of the metropolis, and doubts have been expressed whether vestries and boards of works can apply the parish moneys to such purposes.

The delegates of the parishes thought it right, therefore, to take the opinion of counsel upon the subject, and a case was prepared and laid before Mr. Pashley, stating the above facts, and also stating that some doubt having been expressed whether the vestries and district boards could legally incur such expenses, and whether they could legally rate their respective districts in aid of them, counsel's opinion was requested whether under the Metropolis Local Management Act, 1855, or any other Act, the vestries and district boards were justified in incurring those expenses.

Counsel's attention was directed to clause 92 of the Metropolis Local Management Act, 1855, the words of which are as follows:—

Provided also that all expenses of paving, lighting, watering, cleansing, or improving any parish, or any part of a parish mentioned in either of the schedules A and B to this Act, and all other expenses in relation to the regulation, government, or public concerns of any such parish or part, or of the inhabitants thereof (except only expenses incurred in relation to the affairs of the church, or for the management or relief of the poor, and other expenses payable by law out of any poor-rate which are not herein provided for), shall be deemed expenses incurred in the execution of this Act, and shall be defrayed accordingly.

The case referred to the following observations of Mr. Toulmin Smith in his edition of the Act upon the 92nd section.

These words are large: they embrace as to place not only what concerns an entire district as formed under this Act, but any parish in such district, and any part of such parish;—as to subject matters they clearly embrace whatever is of public interest to any such place. Under these words it will become a matter of obligation on the vestry in the case of a single parish, and on the district boards in the case of parishes combined in a district, to provide for the expenses of public meetings, and those other similar matters touching public concerns which are now done irregularly and illegitimately.

The questions submitted to counsel were—

1. Whether the expenses of this inquiry form a legitimate subject of expenditure by the vestries of district boards; and,
2. Whether they are justified in levying a rate to meet such expenses.

The opinion of Mr. R. Pashley was as follows:—

1. The expenses referred to are, I think, within the words of section 92, as "expenses in relation to the regulation of public concerns" of the parish, and are, therefore, expenses incurred in executing the Act. If so, a reasonable sum may legitimately be expended as proposed.
2. Expenses thus within section 92 are clearly also within section 161, as "other expenses of executing this Act."

Section 161, referred to by Mr. Pashley, is the general clause giving power to make rates—that is to say, a sewers rate, a lighting rate, and a general rate, which last mentioned rate is to be "a separate rate in respect of each sum ordered to be levied for defraying other expenses of executing this Act, to be called a general rate."

Another opinion of counsel has been taken by some other parties, and this opinion disagrees with the opinion given by Mr. Pashley.

The following is a copy of the opinion:—

I am of opinion that both of these questions ought to be answered in the negative. The answer to the first involves the answer to the second of them, if the answer to the first ought to be in the negative. It appears to me that the case of *Rex v. Norfolk Commissioners of Sewers*, 13 Q. B. R., 549, disposes of the questions; and an examination of the cases there referred to will suggest a series of reasons against the validity of the proposed expenditure. With regard to the 92nd section of the Metropolis Local Management Act, the only expression therein which lends any support to the notion that money may be so expended is "public concerns." I think that the words "other expenses," which are to be read with "public concerns," must be interpreted by ascertaining what the word "other" points at. It points at "paving, lighting, watering, cleansing, and improving," which are all actual, direct, immediate concerns of the parish, and not remote, contingent, or speculative—above all, not merely experimental.

The only branch of expenditure to which I can liken this under consideration is "Law Expenses," but the object to be immediately gained differs widely from those for which law expenses were resorted to, and is not of that defensive or precautionary character which might justify recourse to what may be called quasi-litigation.

In all private Acts of Parliament the Legislature provides for the costs of passing them. The case above referred to shows that expenses may be incurred to protect the due beneficial and immediate exercise of an authority given to a public body; but in the present case no immediate interference with existing things has been attempted; no legislation is immediately sought; and, as the inquiry is whether there shall be legislation, how can the present ratepayers be lawfully or justly burdened with expenses which may produce no benefit, and which, if they effect a benefit, only will effect one to be enjoyed by their successors of some time hence?

I think that the inquiry under consideration should be conducted at the expense of those who are willing to incur the risk of not establishing such a case as will induce the Legislature to interfere, and also to direct that such persons shall be reimbursed this outlay; and that it is not competent for vestries to apply the parish moneys to such a purpose now. DAVID KEENE.

The case referred to by Mr. Keene in his opinion has the following marginal note:—

If a bill depending before Parliament for the drainage of a district is likely injure a neighbouring level, the Commissioners of Sewers for that level may legally incur costs in endeavouring to procure a rejection or modification of the bill; such opposition, if undertaken prudently and *bonâ fide*, being (within statute 3 and 4 William IV., cap. 22, section 16) a "litigation" or controversy, arising out of the duties imposed on the commissioners by the Statute of Sewers.

Although the commissioners might not be compellable by *mandamus* to oppose such bill, they may levy a gross rate, under statute 4 and 5 Vic. cap 45, section 1, to pay the expenses of a past *bonâ fide* opposition to such bill, the rate to be afterwards apportioned according to section 2. And a *mandamus* lies to compel them to make a rate (if they have no other funds) for repayment of costs incurred by their clerk under their authority in such opposition.

The Lord Chief Justice, at the end of his judgment, remarked as follows:—

I hope that our decision in this case will not be considered as sanctioning wanton oppositions in Parliament at the expense of ratepayers. Our determination rests on the ground that this opposition was clearly *bonâ fide* and clearly prudent.

Many of the ratepayers of the metropolis are alarmed at the extensive discretion which, according to Mr. Pashley's opinion, vestries and district boards possess for incurring parliamentary and other expenses such as are now being incurred.

In the case of *The Attorney-General v. Andrews*, 20 L. I. N. S. 467, before the Lords Commissioners, the commissioners under a local Act for supplying Southampton with water, who were by their Act empowered to do all things necessary for that purpose, and to levy rates for erecting and maintaining the works, "and in otherwise carrying the Act into execution," were held not to be justified in applying the moneys so raised in defraying the expenses of an application to Parliament for another Act to extend their powers, and an injunction was granted to restrain them from so doing.

Your opinion is requested—

1. Whether vestries and district boards can combine together and contribute towards the expenses of such an inquiry as that before Parliament mentioned in the case.
2. Whether they are justified in levying a general rate, or other rate, to defray such expenses.
3. Whether, if they are not so justified, a ratepayer may resist payment of the next rate on the ground of the illegal application of the last rate to parliamentary contest; and if not, whether a ratepayer can apply for an injunction as in the case above quoted, or has any and what remedy against the vestry or district board so misapplying the rate.

OPINION.

1. We are of opinion that vestries and district boards cannot lawfully combine to contribute towards the expenses of the parliamentary inquiry mentioned in the case from the funds arising from the rates raised in their respective parishes or districts.
2. We are of opinion that they are not justified in levying a general or other rate to defray such expenses.
3. We are of opinion that ratepayers cannot resist payment of the next rate on the ground of the misapplication of the last preceding rate, but that their proper remedy is by information to be filed by the Attorney-General on the relation of one or more ratepayers, and by an application for an injunction against the vestry or board so misapplying, or being about to misapply, the rates entrusted to their management.

(Signed) H. M. CAIRNS.
Westminster Hall, April 14, 1859. W. H. BODKIN.

THE METROPOLIS GAS INQUIRY.

SPECIAL MEETING OF THE WESTMINSTER DISTRICT BOARD.

On Wednesday a Special Meeting of this Board was held at the Board-room, Great Smith Street, Westminster, to take into consideration and determine upon "the propriety of taking the necessary steps for preparing and introducing into Parliament, with the least possible delay, a bill for regulating the supply of gas to the metropolis, and other matters connected therewith; and come to such resolutions as circumstances may require."

Mr. Godson occupied the chair. The members present were, Messrs. Hughes, Doughty, Scudamore, Painter, Clarke, Horn, Norris, Grove, Price, Howell, Eyles, Fowler, and Shedlock.

After the clerk had read the requisition for the meeting,

Mr. Horn objected, and thought it entirely unnecessary that they should be called together that day, for if Mr. Hughes had given the information asked for at the previous meeting the whole truth of the matter would have come out, and the meeting would then have been unnecessary. (Hear, hear.) The committee of gas delegates had broken down, which he regretted exceedingly. He (Mr. Horn) then reviewed and deprecated the course which the delegates had taken, and stated it to be illegal to pay the money towards this inquiry, inasmuch as the great body of the ratepayers were gas consumers. All that that board required was a plain statement of facts, and all that the ratepayers wanted was a fixed price for gas, and a standard of illuminating power. (Hear, hear.) He entered into a lengthy attack upon the parliamentary evidence of Mr. Hughes, and then moved the following resolution:—"That in the opinion of this meeting, it is expedient to take immediate steps for preparing and introducing into Parliament, with the least possible delay, a bill for regulating the supply of gas to the metropolis, and other matters connected therewith."

Mr. Norris seconded the resolution, and expressed a desire that it would be unanimously agreed to.

Messrs. Scudamore, Norris, and Mr. Rogers (solicitor), then entered into a lengthy though somewhat desultory debate with regard to the acts of the gas delegates, and Mr. S. Hughes went at length into explanations, disputing many statements advanced by the above gentlemen against the delegates, and by Mr. Horn in particular.

Mr. Clarke corroborated a portion of Mr. Hughes's statements, and defended the course pursued by the delegates, and thought it would be better to leave the matter in their hands, and grant them enlarged powers, otherwise it would be a vote of censure. ("Hear, hear," and "No.")

Mr. Rogers (solicitor to the board) strongly advised the board not to have anything to do with the general inquiry now carried on by the gas managers, and they would have the advantage that they were the plaintiff, and would therefore prove the case and have the last word. (Hear, hear.) He added that the parliamentary committee had broken up with the view that the parishes might bring in a bill.

The Chairman thought that by presenting a bill of their own in Parliament it would at all events bring the matter to a bearing

Mr. Shedlock proposed the following amendment:—"That it is the opinion of this board it would be advisable for the delegates appointed by the several vestries and district boards, with reference to the Metropolis Gas Company, to take into their immediate consideration the propriety of introducing clauses into a bill to be introduced into Parliament for authorizing the erection of gas-works for the supply of gas by the several vestries and district boards in the metropolis, and other matters connected therewith, for relieving the parishes from the gas monopoly at present existing, or assisting new companies willing to erect such works, and report thereon to the several vestries and district boards." He (Mr. Shedlock) said if they did not give the delegates sufficient power, what should they do? The delegates did not depend on what Parliament should say, but upon what the parishes were willing to contribute or do. His desire was that they (that parish) should subscribe or assist, but not to prepare the bill themselves (that board), and have the *onus* cast upon them for taking the initiative. This board, to present their own bill, ought to be associated with persons of a greater command of capital—they ought not to set themselves up as the arbitrators of the metropolis; but he did consider they ought, in conjunction with the other parishes of the metropolis, to have gas-works, and therefore he proposed the amendment.

After further desultory remarks the amendment, not being seconded, fell to the ground, and the resolution was put and carried with one dissentient.

Mr. Norris moved, and Mr. Horn seconded, the following:—"That it be referred to a committee, consisting of seven members of this board, to ascertain and report upon the proceedings before a committee of the House of Commons with reference to the Metropolis Gas Inquiry, and as to the steps that it would be most advisable to take for carrying into effect the foregoing resolution."

Mr. Shedlock declared this resolution to be one of the most inconsistent he had ever met with, and maintained it was a vote of censure on the delegates, and expressed his determination to vote against it and to demand a division, as he would not be a party to any such transaction.

The resolution was then put—ayes, 5; noes, 5. On a division, it was carried, ayes, 7; noes, 5.

The following gentlemen were then appointed on the committee: Messrs. Norris, Horn, Doughty, Lownds, Painter, Scudamore, and Howell.

CITY OF LONDON COURT OF SEWERS, GUILDHALL.

TUESDAY, APRIL 19.

(*Mr. Deputy* Christie *in the chair.*)

The following notice of motion appeared upon the paper of business, an intimation having been given at the last meeting of the commissioners that a memorial would be presented this day from the City Gas Company in reference to the proceedings of the court on the 5th inst.:—

Mr. Deputy Harrison to read the following extract from the speech of the company's counsel upon the committee of the House of Lords on Friday, the 25th of March last:—"Amongst the petitioners, who, however, would not be satisfied with anything short of giving a decided triumph to the Great Central over its rival, the City Company, was the petition of the Commissioners of Sewers of the City of London;" and to ask Mr. Gray "whether the company gave instructions to their counsel to make such statement? and whether they have gratuitously circulated amongst their shareholders and others copies of the Journal of Gas Lighting of 29th March last, in which it appears?"

After the ordinary business of the day had been disposed of,

Deputy Harrison said he had just received a letter from Mr. Gray, in which he intimated that he should not appear before the court as he had intended. He regretted that, not having Mr. Gray's permission, he was unable to lay that letter before the commissioners.

Mr. Abrahams suggested that the matter should be postponed until their next meeting.

Deputy Harrison said he had nothing to postpone. Had Mr. Gray presented his memorial, he (Deputy Harrison) would have proposed the questions of which he had given notice, but under the circumstances the subject must now drop.

The Chairman said he had also received a letter from Mr. Gray, in which he said that it was not his intention to present a memorial, and requesting that his letter might be laid before the court. The practice of the commissioners, however, was that no memorial or communication should be read except when the parties addressing the court were in attendance. Independently of that, there were some statements in the letter which in the exercise of his discretion he thought it prudent not to read.

The Clerk read the report of the Improvement Committee, which stated that the opposition they were directed to conduct against the City Gas Company's Bill in the House of Lords had been unsuccessful, that the bill had passed that House and been introduced and read a first time in the House of Commons. No further proceedings would be taken in the matter during the present session, but on the reassembling of Parliament the bill would be resumed at the stage to which it had now arrived. The committee, therefore, requested instructions whether they were to petition against it and to engage counsel to appear in opposition.

The discussion of the report was conducted with closed doors. We understand that there was an animated debate on the subject, and that an opinion was expressed by several members that the only step to be taken should be to petition the House against the second reading.

Ultimately the report was received and referred back to the committee to do therein as they might be advised.

MEDICAL OFFICERS OF HEALTH—THEIR DUTIES AND RESPONSIBILITIES.

(*From the Medical Times and Gazette.*)

The duties of a medical officer of health in a populous district, when properly performed, cannot fail to be attended with benefit to the public. The detection and removal of nuisances which may affect public health are among the most prominent, as well as the most responsible, of these duties. The purity of the water which we drink, of the air which we breathe, and the quality of the food with which we are supplied, alike claim his attention; and that officer would be unfit for his position who did not honestly and conscientiously endeavour to protect the public in reference to matters on which generally they may be ignorant. Even an over-zealous effort to reform supposed abuses may be justifiable, when we know that the effort is made *bonâ fide*, and is based on honest motives. So long as the good preponderates over the evil, and the acts of these officers are dictated by ordinary discretion, the public will not tolerate too severe a criticism of their proceedings. So long, too, as there is no parade of science,—no attempt at deception by the use of learned terms to support a bad case,—we on our part do not feel called upon to interfere. The greater number of these officers employed in the metropolitan districts have, we believe, given satisfaction; they have chronicled births and deaths, determined the death-rate of their respective localities to an evanescent fraction, the exact proportion of infants to adults, the ratio of the sexes, the number of persons to a house and even a room, the proportion of privies to water-closets, and synthetically and analytically, the precise amount of excrement from each individual, which, under the present arrangements of the "Thames Conservancy," finds its way into that once limpid stream.

One of these medical officers some time ago made himself conspicuous on the water question, by proving, at least to his own satisfaction, that the common salt found in Thames water was derived from the excretions chiefly of the inhabitants of the metropolis, but more or less of the town populations on the banks of the Thames. As every gallon of urine contains about half-an-ounce of salt, there arose the uncomfortable reflection that to whatever part of the river we might go for water, we could not escape drinking that which had already passed through human and animal bodies. Having thus demonstrated that we were daily imbibing a nauseous liquid in resorting to river-water, he next proceeded to show that the well and spring waters of the metropolis were even more objectionable. Besides common salt, they contained a large quantity of plaster-of-Paris, with the washings of the manure and filth from the surface soil of London, varied occasionally with the leakage of sewers and gas-pipes, and brought up to the highest pitch of insalubrity by the presence of nitrates in the springs of London graveyards. The nitrates represented the ammonia derived from the putrefaction of animal matter, and thus it was proved that a respectable citizen procuring water from his churchyard pump, was unconsciously swallowing, in a converted form, the corporeal elements of those who had lived in the parish before him. As long as the water was cool and tasteless, the presence of these saline ingredients was disregarded.

The most unsatisfactory part of this address was, that the public were not informed of the source whence they were to procure water free from these alleged impurities. The fallacy, however, lay in assigning too much importance to the presence of a small quantity of salt in river-water, and making it symbolic of a source of contamination for which no reasonable ground could be assigned. Chloride of sodium is a most universally diffused salt; there is scarcely any water which has once touched the earth that does not contain it, and its presence in river or spring water is no more an indication of its being derived from animal excretions than its presence in enormous quantity in sea-water proves that the ocean has derived it from a similar source. We may be content to inquire, too, whether the water does or does not contain that which is injurious to health—a question easily solved by chemistry. This question has received its answer; and, practically, the Thames water now supplied by the companies to London is wholesome and free from those objections which have been somewhat unreasonably urged against it. Even our sanitary reformer, who probably lives without water, or has it specially manufactured from oxygen and hydrogen for his domestic use, obviously prefers the chlorides of the Thames to the nitrates of the London springs!

Another medical officer, without arriving at the alarming conclusion that no water procurable in London should be drunk, occupies himself periodically in raising a small panic by recording the actual weight of *impurity* per gallon contained in the waters supplied to the metropolis. Thus we are informed in one of the latest of these sanitary bulletins, dated January, 1859, that Thames water contains of total *impurity* per gallon, 20·64 grains; and in order that we may have some standards of comparison, at one end of the scale we find the impurity of the water of Loch Katrine supplied to Glasgow represented at 2·1 grains, while at the other end there is genuine London spring—namely, the well water of Broad Street, Soho, which, rightly or wrongly, was charged in 1854 with having greatly assisted in propagating the fatal ravages of the cholera—this is represented as having a total impurity per gallon amounting to 92·06 grains. Is the gentleman who circulates these periodical water-analyses fully aware of the meaning attached by the public to the word "impurity?" Referring to a standard authority, we find it to signify—"foulness," "feculence," "the admixture of a foreign substance in anything." In which sense does he employ it? The sense in which the public take it is, that it implies the presence of some foul matter derived from sewerage or other noxious sources, and they are accordingly made unhappy and discontented by these official announcements. They are looking for a time when the impurity will cease altogether to present itself; but the sanitary officer well knows that that time will never come. The purest water in the world contains and must contain "im-

purity," if the term is to be applied to that small quantity of mineral and organic matter found in every river and spring water in the world. Even the water of Loch Katrine contains its impurity according to this authority, and probably there is no purer water to be found. Rain water, as it falls through the atmosphere takes up various ingredients by washing the air, and thus receives impurity before it touches the ground. As we are living in a practical age and cannot dispense with water, it is desirable to place things in a proper light, and not mislead the public by the use of inappropriate terms. The daily supply of water for the wants of this great city is considered to reach nearly *one hundred millions of gallons.* If the medical officer of health has any secret by which he can procure this quantity, or anything approaching to it, of absolutely pure oxide of hydrogen, it would be better to announce it at once. If he knows of any cheap and reasonable scheme by which the water of Loch Katrine, or any water like it, can be supplied daily to London in the quantity now found necessary, it would also be proper to bring it at once before the public. We must not only have quality but *quantity*, for the real problem is to supply cheaply two millions and a quarter of human beings with a necessary of life, health, and comfort! Failing these substitutes, we would advise him to consider whether, when certain ingredients in water cannot be kept out of it by any known process, we are justified in applying to them a term which certainly produces misconception and tends to cause dissatisfaction. Further, the question really is, whether the quantity of these substances which nature will insist on putting into each gallon of water is such as to produce injury to health? If not, it is a subject which is unworthy of the prominence that has been given to it. As well might another medical officer require Parliament to legislate for the breathing of an atmosphere containing only the normal proportions of oxygen, nitrogen, aqueous vapour, and carbonic acid. The air may, and in fact always does, contain a few additional ingredients, without our requiring quarterly a formal sanitary announcement of the number of cubic inches of "impurity" in a cubic foot.

The above may be considered as specimens of sanitary trifling. We set them down to the fact that something must be done for the sake of the office as well as the salary, and the public suffer but little except in being agitated occasionally by an unnecessary air or water panic. The matter becomes serious, however, where unfounded charges are raised, and individuals are put to annoyance and expense in order to defend themselves in a court of law or before our police authorities, owing to the ignorance or officiousness of their accusers. It is to the credit of the medical officers of health, as a body, that those cases are rare. A medical officer of health, in all public questions, should act judiciously, and deal impartially with the case submitted to him. He should not be influenced in any manner by the personal feelings or prejudices of those under whose authority he may act, even although his occupation of the office may be in their hands. This independence is the more necessary, because his office is one of honourable trust—his duty is to protect the public health, and at the same time to protect individuals from unjust charges on sanitary questions. Magistrates and lawyers are, unfortunately, but little acquainted with scientific subjects; they are ready to take upon trust the statements made by one occupying so responsible a position as that of a medical officer of health: hence it is the more incumbent upon him that whatever he states should be guarded, and his statement be made with as much care as if a jury of scientific chemists were listening to him. If a manufacturer is charged with polluting the waters of a stream by turning into it any noxious refuse, it is not enough to rest content with an analysis of the water issuing from his works. The investigator of truth will require some information respecting the quality of the water which enters the factory: he will wish to satisfy his mind whether or not the water is polluted before it reaches the factory. A partisan will feel that this is unnecessary, because it may perchance prove unfavourable to the case of the person who retains his services. There may, however, be a similar factory just above, and the water received at the defendant's factory may be already in a polluted state. We believe there are few scientific chemists who valued their reputations who would come forward to give evidence upon a single analysis, adapted only to fit the case of the complainant.

In the City Gas-Works case, on which we commented last week, Dr. Letheby, in the capacity of analyst to the Conservators of the Thames, examined and reported on some liquid issuing from the defendants' premises. He found it to contain "a large quantity of sulphuretted hydrogen and ammonia, and gases of a most offensive odour. The liquid was not only very noxious and deleterious to health, but poisonous to the river." As it is notorious that these are the constituents and the properties of town sewerage, and it appears from his evidence that nothing else of an offensive nature was present in the liquid, it was his duty to represent to his employers that it would be absolutely necessary to trace this foul liquid to its source, and examine the contents of the sewer before it entered the premises. He might have said:—"These noxious compounds are, it is true, a product of gas-manufacture, but at the same time they may have resulted from the decomposition of animal excrement, and they are discharged in large quantities hourly into the river at all points where there are sewer openings; they were the main cause of the stinking smell of the Thames during the last summer; and were all the gas-works in London abolished, they would still issue and be the cause of offensiveness and noxiousness to health until the sewerage was diverted into another channel. Considering the nature of these products, a small sewer may traverse the gas premises, and whether few or many houses discharge night soil into it, these gases may be evolved by putrefaction." He might have insisted too, as the sewer merely traversed the premises, upon not giving any opinion condemnatory of the defendants, until he had analyzed the liquid contents derived from the houses outside of the premises. For reasons already stated, there was a total failure of chemical proof that any gas liquor had found its way into this sewer or drain; but we cannot acquit Dr. Letheby of indiscretion in coming forward to support a charge of this description when he had it in his power to show the similarity or the dissimilarity of the sewerage as it entered and passed out of the premises. In our opinion, had such an analysis been made, the charge would have at once fallen to the ground; neither the magistrate nor the lawyers engaged in the case would have seen or smelt any difference in samples fairly taken at the points mentioned. This is not a solitary instance: we have heard of another in which, in reference to a charge of nuisance, this medical officer was prepared to give evidence upon equally unsubstantial chemical grounds. We understand that a gas company at Woolwich has been recently convicted upon his evidence, touching the contamination of the river. If his facts and inferences had no better foundation than in the case on which we have felt it our duty to comment, the Woolwich Company has fair ground to claim a re-hearing of the information. Such doings—miscalled sanitary—will, unless checked, bring the office into contempt; and it is obvious that, unless public attention is directed to them, the greatest abuses may arise, and the greatest injustice be done with impunity under the cloak of pseudo-scientific evidence. The public press is not the organ by which such proceedings can be properly made known; they can only be judged, exposed, and condemned by journals which meet the eyes of the profession. In a police court, or in the columns of a newspaper, mystification and sophistry may prevail: they vanish before a professional tribunal.

GAS-METER TESTING.—The following report on sundry meters tested by the Commercial Gas Company and by Mr. Taunton, is extracted from the *Westminster Gazette*, and exhibits results which can scarcely be accounted for even by a difference in the standards of measure employed, as the variations, instead of being uniform, range between ¼ and 1¾ per cent.:—

Number.	Number of Lights.	Description.	Maker's Name.	Date.	Number of Meter.	Results of Testing at the Adjusted Water-Lines of the Wet Meters	
						By the Commercial Gas Company.	By Mr. Taunton.
1	3	Wet	S. Crosley	1839	6,973	3 per cent. slow.	¼ per cent. fast
2	3	,,	,,	1842	21,072	Correct.	1 ,, ,,
3	5	,,	,,	1853	17,461	,,	
4	3	Dry	Croll and Glover	1850	22,935	4¾ per cent. fast	6 ,, ,,
5	3	Wet	S. Crosley	1837	27,968	3 ,, slow	1¼ ,, slow
6	3	,,	,,	1850	75,798	1½ ,, fast	2½ ,, fast
7	3	Dry	Croll and Glover	1851	31,350	1½ ,, ,,	1¼ ,, ,,
8	3	,,	Glover	1852	42,474	3½ ,, ,,	1½ ,, ,,
9	3	,,	,,	1853	42,784	1¼ ,, ,,	1½ ,, ,,

Price Current.

CASTINGS, PER TON.

Average Weight of Cast-Iron Gas-Pipes, per Yard.

1¼ in.	2 in.	2½ in.	3 in.	4 in.	5 in.	6 in.	7 in.	8 in.	9 in.	10 in.	12 in.
16	21	28	33	51	70	89	107	126	149	177	208 lbs.

Retail Prices are 5 to 10 per cent. higher.	London.	Glasgow.	Newcastle.	Wales.	Yorkshire, Derbyshire, and Staffordsh.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Pig Iron, No. 1	4 10 0	2 14 0	3 0 0	4 0 0	4 5 0
1¼ and 2 inches Socket-Pipes	7 15 0	7 0 0	7 5 0	7 10 0	7 5 0
2½ and 3 ,, ,,	7 5 0	6 15 0	7 0 0	7 5 0	7 0 0
4 and 5 ,, ,,	7 5 0	6 10 0	6 15 0	7 0 0	6 15 0
6 in. and upwards ,,	7 0 0	6 5 0	6 5 0	6 15 0	6 5 0
Retorts, 1st fusion, hot blast	6 15 0	...	6 15 0	7 0 0	6 15 0
,, 2nd ,, cold ,,	7 15 0	...	7 0 0	7 5 0	7 0 0
Tank Plates, ¼ thick and above	7 5 0	6 10 0	6 15 0	7 0 0	6 15 0

WROUGHT-IRON TUBING,

Subject to 40 per cent. Discount.

	2 in.	1½ in.	1¼ in.	1 in.	¾ in.	½ in.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Patent Welded Tubes, from 2 to 12 ft., perft.	1 8	1 0	0 10	0 7	0 5	0 4½
,, ,, ,, 6 in. to 18 in., each	3 0	2 0	1 9	1 3	1 0	0 9
Connecting-Pieces, or Long Screws	3 6	2 3	2 0	1 6	1 2	0 11
Bends, Springs, and Elbows—wrought iron	3 9	2 3	1 9	1 0	0 10	0 8
Tees, wrought or cast	4 0	2 6	2 0	1 6	1 1	0 10
Crosses, wrought or cast	4 6	3 0	2 6	2 0	1 6	1 2
Iron Cocks	17 6	9 6	7 6	4 6	3 3	2 6
,, with brass plug	28 0	16 0	13 0	7 0	5 6	4 6
Diminishing Sockets, Caps, Plugs, and	1 3	0 9	0 8	0 6	0 5	0 4
Plain Sockets [Nipples	1 0	0 8	0 7	0 5	0 4	0 3
Syphons, 2 quart	15 0	14 0	13 6	13 9	12 0	—

COALS, PER TON.

Newcastle.—Unscreened.	6s. 3d.	*Scotch Cannel.*	32s. 0d.
Whitwell Primrose		Boghead, at Leith	
Medomsley, Eighton Moor, and Burnhope	6 6	Kirkness, best	23 0
Pelaw	6 9	Capeldrae, 1st quality	20 0
New Pelton, Peareth, South Pelaw, Washington Hutton, and South Peareth	7 0	,, 2nd ,,	12 6
Pelton	7 9	Lesmahago, at Glasgow	25 0
Ramsay's Newcastle Cannel	16 0	,, ,, Leith	27 6
		Arniston	22 0
		Wemyss	20 0
		Knightswood	18 0
		Pirnie	15 0

SUNDRIES.

Best Newcastle Fire-bricks	per 1000	50s. 0d.	
,, ,, ,, clay	per ton	12 0	
Cliff's Fire-bricks, at Wortley	per 1000	57 6	
Ingham's Fire-bricks, at Wortley	,,	55 0	
Tough Cake Copper ... per ton	£112 10s.	Foreign Spelter	per ton £21 15
English Pig Lead ,,	22 15	English Block Tin	,, 129 0
Welch Bar Iron, in London ,,	7 5	Banca	,, 135 0
Tarred Rope Yarn	per cwt.	26s. 0d.	

FREIGHTS.

Coastwise—Newcastle.—Per Ton.		*Foreign.—Per Keel.*	
Chatham & Rochester	5s. 1½d.	Boulogne and Calais	£7 10
Cork	—	Barcelona	24 0
Dover	5 9	Bordeaux	13 0
Dublin	—	Cadiz	14 0
Exeter Quay	8 6	Copenhagen	10 10
Folkestone	—	Dieppe	8 5
Hastings	—	Genoa	22 0
London (Pool)	5 3	Hamburg	7 5
Lowestoft & Yarmouth ... 4s. to	4 3	Havre	8 5
Lynn	5 0	Leghorn	21 10
Portsmouth	6 6	Lisbon	14 0
Plymouth	8 0	Rotterdam	7 0
Whitstable	5 6	Stettin	12 0
Weymouth	—	Trieste & Venice	£23 to 26 0

TO IRON FOUNDERS.

THE Directors of the Surrey Consumers' GAS COMPANY are prepared to receive TENDERS for 2000 Yards of 18-inch SOCKET-PIPES, to be delivered in Barges alongside their premises at Rotherhithe.

The Specification may be seen at the Offices of the Company, where any further information may also be obtained.

The Tenders are to be sent in on or before Tuesday, the 3rd of May, addressed to the Directors of the Surrey Consumers' Gas Company, Rotherhithe, and endorsed "Tender for Main Pipes."

The Directors do not bind themselves to accept the lowest Tender.

W. P. BODDY, Secretary.

Rotherhithe, April 25, 1859.

SECOND-HAND Gasholder Wanted, 50 or 60 feet in diameter, in good condition.

Letters, stating the price and name of the manufacturer, and the date when erected, to be addressed to A. B., care of Mr. THOMAS G. BARLOW, 42, PARLIAMENT STREET.

KINSON FIRE BRICKS are indestructible by heat, and are warranted to last twice as long as Stourbridge, Newcastle, or Welsh bricks. 80s. per 1000 at Nine Elms Station.

WORKS: POOLE, DORSET.

EIGHTON MOOR GAS COALS.—Parties wishing to be supplied with these first-class Gas Coals will please to apply to Mr. MATTHEW NESBIT, EIGHTON MOOR OFFICE, NEWCASTLE-UPON-TYNE. These coals are well known as among the richest in gas, and working the roundest on the River Tyne. They are extensively used by metropolitan gas works.

BRYAN DONKIN and CO.'s improved GAS VALVES have been adopted by numerous Gas Companies in England and abroad, and their advantages and great security fully proved. Very large numbers are in use. Prices from 11s. 6d. to 13s. 6d. per inch diameter.

BRYAN DONKIN and Co.,
Engineers, near Grange Road, BERMONDSEY.

ON SALE, Two Station-Meters, in Round Cast-Iron Cases, made by Parkinson and Co. in 1847, to pass 10,000 cubic feet of Gas per Hour, and now at work at the Gas-Works, Leicester. Price £40 each net.

Further particulars may be obtained on applying to H. M. ROBINSON, Esq., Gas Office, LEICESTER; or to WEST and GREGSON, OLDHAM.

THE PURIFYING-HOUSE SUPERSEDED.

MR. LAMING (Inventor of the Revivified Oxide of Iron Purification) has the satisfaction to announce that Gas may now be purified in a manner that combines unusual commercial advantages with all the possible requirements of the sanitary officer and the public. All that need be said to call attention to the new process is, that instead of the purifying-house, two vessels of small area, placed after the condenser, suffice; that these vessels never have the least communication with the atmosphere; and that neither lime, oxide, nor any other substance foreign to the gas itself is brought into contact with it. Gas engineers will perceive among the advantages thus offered, economy in room, labour, and materials; impossibility of nuisance; and total absence of injury to the illuminating power.

Particulars by addressing RICHARD LAMING, 118, FENCHURCH STREET.

WHITEHOUSE and CO., Boiler and GASHOLDER MAKERS,
GLOBE PATENT TUBE WORKS,
WEDNESBURY,

Beg to draw the attention of Engineers and Managers of Gas Works to the superior quality of the Article they manufacture, both in respect of the iron employed, and the perfect manner in which it is welded; in proof of which they can refer to the testimonials of the most eminent Gas Engineers, and the experience of the principal of the large Gas Companies of the kingdom.

Orders promptly executed.

ROBERT MACLAREN and CO., EGLINTON FOUNDRY, GLASGOW, Manufacturers of all sizes of Cast-Iron Main Pipes, by an improved Patent. General Ironfounders, Gas Engineers, and Wrought-Iron Tube Makers.

M. SHEEN, Gas and Railway Lantern Maker, 90½, Holborn Hill, begs to inform Managers of Gas-Works, &c., that she continues to contract and supply Lanterns on reasonable terms, and keep them in repair by the year.

FOR SALE, by Private Treaty, on liberal terms, a large quantity of Modern and New GAS APPARATUS, of First-Class Material and Workmanship, recently constructed for a Foreign order, but not carried out to the extent anticipated, consisting of Iron D Retorts and Fittings, Hydraulic Mains, Condensers, Purifiers, and 2 Gasholders, each containing 57,000 cubic feet, with several Cast-Iron Tanks and suitable connexions for the whole Works.

Application for particulars to be made to Messrs. W. RICHARDSON and Co., Engineers, Spring Garden Iron-Works, DUDLEY, near Birmingham.

AMMONIACAL LIQUOR to be Let, for One, Three, or Five Years, as may be agreed upon; the whole of the Ammoniacal Liquor (about 300,000 Gallons per annum) produced at the works of the Sunderland Gas Company.

The Contract to commence as soon as settled, or on and from the 1st day of July next.

Further particulars may be known on application to JOHN H. COX, Secretary.

61, Fawcett Street, Sunderland.

TO GASHOLDER MAKERS.

THE ARMAGH GAS COMPANY are desirous to receive TENDERS for a GASHOLDER of 50 feet diameter by 16 feet deep, according to Plans and Specifications to be seen at the Gas-Works, ARMAGH.

Tenders to be sent to the SECRETARY on or before the 13th of May next.

The Committee do not bind themselves to accept the lowest or any Tender.

J. G. DEACON, Secretary.

Armagh Gas Company's Office, April 4, 1859.

BENJAMIN GIBBONS, Jun.,
DEEPDALE FIRE-CLAY & BRICK WORKS,
Near DUDLEY,

Manufacturer of every description of Fire-Bricks, Lumps, Quarries, Shields, Flue Covers, &c., to any size or shape required.

FIRE-CLAY RETORTS,
TO MODEL OR DRAWING.

B. G. begs to call the attention of Gas Companies to his Fire-Clay Retorts, which have been used with great satisfaction in some of the largest Gas-Works in the Metropolis and many Provincial Towns in England.

References given, if required.

ALFRED PENNY, Engineer,
WENLOCK IRON WORKS,
WHARF ROAD, CITY ROAD, LONDON.

Mr. PENNY begs to inform Gas and Water Companies that he undertakes the erection of new, or the alteration of existing, works; and that he may be consulted generally on all matters connected with gas and water supply. He is also prepared to supply best Cold-blast Retorts, Socket-Pipes, and Connections, Iron Borings, &c. &c., and all the necessary Castings used in Gas and Water-Works.

*** Country orders executed with care and despatch.

CAST-IRON Retorts, Socket Pipes, with Syphons and all requisite Connexions, Lamp Columns, Wrought Iron Tubing, Valves, Street Lamps, Sight Holes, Furnace Doors, Ash Pans, Charging and Coke Shovels, Iron Pails and Coke Barrows, Cross Bars, Fire Pots, Pumps, Iron Borings.

PURIFIERS, CONDENSERS, and SCRUBBERS erected complete, or the materials supplied; with every description of goods in use by Gas-Works, in stock, on wholesale prices, at

LYNCH WHITE'S,
Old Barge Iron Wharf, Upper Ground Street,
LONDON.

GEORGE ANDERSON, Gas and CONSULTING ENGINEER,
104, LEADENHALL STREET, LONDON (E.C.).
DIRECT-ACTING GAS-EXHAUSTERS,
supplied either with or without Steam-Engines and Boilers.

FOUR-WAY DIAPHRAGM VALVES,
one of which answers the purpose of THREE ordinary Valves, as applied to Purifiers, or in shutting off and passing Station-Meters, Governors, or other apparatus, while the Connecting-Pipes are also much simplified.

RETORT SETTINGS,
designed to be heated by Tar alone, and with a total absence of Smoke.

Illustrated circulars, giving references and every information, may be obtained on application as above.

WROUGHT-IRON Guides for Gas-holders.—Designs and Working Drawings for Trussed Wrought-Iron Guides and Frames can be obtained of CHARLES DIXON, C. E., Chichester, SUSSEX.

EDWIN DIXON,
WOLVERHAMPTON PATENT WROUGHT-IRON TUBE WORKS,
Originally established in 1833,

Manufacturer of Gas and other Tubes, Fittings, and articles of every description belonging to Gas, Water, or Steam.

E. D. had the honour of receiving the
PRIZE MEDAL
awarded to this Manufacture by the COUNCIL of the GREAT ENGLISH EXHIBITION of 1851; and from the latter date has supplied many towns exclusively with GALVANIZED and other Tubes for Gas and Water, under GOVERNMENT ENGINEERS.

A City, containing 150,000 inhabitants,
has recently been entirely supplied with Tubes made at the above-named Works, and several others with populations nearly as great; in fact, the reputation now acquired induces this notice to the public.

Large Stocks generally on hand, averaging from one to three hundred thousand feet.

HYDRAULIC PRESS TUBES,
to resist 6000 lbs. and upwards to the square inch, extensively manufactured.

STOCK DIES and SCREWING TACKLE,
of the best possible description.

Every Tube carefully tested with Hydraulic Pressure before leaving the Works.

WILLIAM PARKINSON AND CO.,

(SUCCESSORS TO THE LATE SAMUEL CROSLEY,)

COTTAGE LANE, CITY ROAD, LONDON,

Beg to announce that, in addition to the Manufacture of

GAS-METERS,

they continue the Manufacture of

METERS FOR MEASURING WATER, SPIRITS, &c.,

commenced, under Patent in 1849, by the late Mr. William Parkinson.

These Meters are as simple and durable as the Gas-Meter, and as correct as that instrument in the registration of the fluids passing through them.

FIRE-CLAY RETORTS.

JOHN SWARBRICK,

MANUFACTURER OF PATENT COMPOSITION CLAY RETORTS,

FIRE BRICKS OF EVERY DESCRIPTION, SHAPE, AND SIZE, &c. &c.

HIGHER EANAM, BLACKBURN, LANCASHIRE.

These RETORTS are generally used in the Gas-works of Preston, Accrington, Bury, Heywood, Middleton, Rochdale, Ratcliffe; the Mills of Messrs. Horrocks, Miller, and Co., Preston, &c. &c., and are unequalled in having afforded general satisfaction to those who have given these Retorts a trial.

To meet the increasing demand, the Works at Little Harwood have been greatly enlarged; and Gas Engineers who may favour with an Order may rely with confidence on their being promptly supplied with an article not to be surpassed in finish or durability.

PRICES MODERATE.

FOR SALE, Two Gasholders, on liberal terms, 30 feet by 12 feet deep, with Wrought-Iron Tanks.

May be seen at work by applying to GEO. COTTON, Gas-Works, WARWICK.

TO GAS COMPANIES AND CONTRACTORS.

FOR SALE, several lengths of Hy-DRAULIC MAIN, 14 inches diameter and 6 feet 9 inches long, with 7 holes for Dip-Pipes.

Also, 4-inch ASCENSION-PIPES and 3-inch ARCH and DIP PIPES, all in excellent condition, and will be sold at a very low price.

To be seen on application to the STOREKEEPER, at the Equitable Gas Company's Works, Lupus Street, PIMLICO.

GAS PURIFIER FOR SALE.

TO be Sold, a bargain, Second-hand, four DRY-LIME PURIFIERS, with centre Valve and Lifting Apparatus for raising Covers, very complete and in good condition.

Dimensions, 3 feet square by 3 feet deep each compartment, with five tiers of Cast-Iron Grates and 4-inch Inlet and Outlet Pipes.

For price and to view the same, apply to F. W. OLDFIELD, Manager, SPALDING Gas-Works.

WM. RICHARDSON and CO.,
SPRING GARDEN IRON-WORKS,
DUDLEY, near BIRMINGHAM,
Manufacturers of Gas Apparatus in all its branches.
A large assortment of New and Second-hand Gas Apparatus constantly for Sale.
Gas Apparatus Enlarged and Exchanged.

EQUITABLE GASLIGHT COMPANY,
21, JOHN STREET, ADELPHI.

NOTICE is hereby given, that a HALF-YEARLY ORDINARY MEETING of the SHAREHOLDERS of the said Company will be held at this Office, on TUESDAY, the 10th day of MAY next, to receive the Reports of the Directors and Auditors, and to declare a Dividend upon the capital of the Company for the half year ending Dec. 31 last, and to elect two Directors and one Auditor in the place of the Directors and Auditor who will then go out of office, pursuant to the provisions of the Act of Parliament for incorporating the Company.

The Directors and Auditor who will go out of office by rotation at the next meeting are John Holdship, Esq., and Samuel Peace Pratt, Esq., Directors, and John Stroud, Esq., Auditor.

John Holdship, Esq., Director, and John Stroud, Esq., Auditor, are eligible to be re-elected, and offer themselves accordingly.

Samuel Peace Pratt, Esq., having signified his intention of not offering himself for re-election, there will be a vacancy at the Board of Directors which should be filled up at this meeting.

The chair will be taken at One o'Clock precisely.

Notice is hereby also given, that the Transfer Books of the said Company will be closed on Monday the 2nd, and re-opened on Tuesday, the 10th day of May next.

By order of the Board,
(Signed)
April 19, 1859. SAMUEL ANDREWS, Secretary.

WILLIAM CLIBRAN'S Patent
MERCURIAL GAS-GOVERNOR FOR STREET LAMPS.

W. C. begs respectfully to call the attention of Gas Companies to his PATENT GAS-GOVERNOR for STREET LAMPS, upwards of 3000 of which are now in use on Public Lamps. By their use any given quantity of Gas per hour may be consumed with the tap full open whatever the increase of pressure may be, thus preventing a great waste of Gas in many of the Lamps, and securing to the public an uniform light. Prices, 3s. 4d., 3s. 6d., and 3s. 8d. each.

Governors kept in stock from three-eighths of an inch to four inches bore.

Samples and Testimonials forwarded on application to WILLIAM CLIBRAN, 43, Todd Street, MANCHESTER.

METROPOLITAN BOARD OF WORKS.
MAIN DRAINAGE OF THE METROPOLIS.
SOUTHERN HIGH-LEVEL SEWER.
TO BUILDERS, CONTRACTORS, AND OTHERS.

THE Metropolitan Board of Works hereby give notice, that they will MEET at the Council-Chamber, Guildhall, in the City of London, on FRIDAY, the 20th day of May next, at Twelve o'clock at noon precisely, and will then be prepared to open TENDERS by parties who may be willing to CONTRACT for the CONSTRUCTION of MAIN BRICK SEWERS, 9 miles 2940 feet in length, or thereabouts, and for the execution of other works in connexion therewith, to extend from Deptford Creek to High Street, Clapham. Also a branch to extend from the Broadway, Deptford, to the point of junction of the Effra Sewer at Dulwich and Norwood, all in the respective parishes of Saint Nicholas, Deptford, in the county of Kent; Saint Giles, Camberwell; Saint Mary, Lambeth; Clapham and Streatham, in the county of Surrey; and for the maintenance of such works in complete repair for twelve calendar months.

Parties desiring to submit Tenders may, upon payment of £3, obtain Plans, Sections, Specification, Form of Tender, and other particulars, on application at the office of the Board, between the hours of Nine a.m. and Four p.m., on and after Thursday, the 14th of April instant.

Tenders addressed to the Metropolitan Board of Works must be delivered at the office of the Board, No. 1, Greek Street, Soho, before Four o'clock p.m. on Thursday, the 19th day of May next, and no Tender will be received after that hour.

The Board do not bind themselves to accept the lowest or any Tender, and the party whose Tender shall be accepted will be required to provide two approved sureties for the due performance of the works.

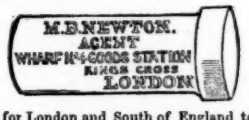
E. H. WOOLRYCH, Clerk of the Board.
No. 1, Greek Street, Soho, April 7, 1859.

By Royal Letters Patent.

KAY'S Patent Equitable Gas-Meter is the most effective preventive of fraud by "tilting," and is as simple in construction as the common meter.

Manufactured only by
W. COWAN,
60, BUCCLEUCH STREET,
EDINBURGH;
AND
COMMERCIAL CHAMBERS,
RIDINGS COURT, ST. MARY'S GATE,
MANCHESTER.

J. CLIFF'S Fire Bricks, Clay RETORTS, &c.



Orders for London and South of England to be addressed to Mr. NEWTON, Agent for the District, 16, Castle Terrace, New Hampstead Road, KENTISH TOWN, N.W.

N.B.—A few Retorts of each size, and a large stock of Bricks and Lumps, always on hand at the above Wharf.

NOW READY.

VOL. VII. of the JOURNAL of GAS LIGHTING, WATER SUPPLY, and SANITARY IMPROVEMENT, for 1858, price 21s., bound in cloth and lettered. A few copies of Vols. II., III., IV., V. and VI. are still on sale.

W. B. KING, 11, Bolt Court, Fleet Street.

THE GREAT CENTRAL GAS CONSUMERS' COMPANY.
Just Published,

A FULL Report of the Proceedings on the ARBITRATION between A. A. CROLL, Esq., and the GREAT CENTRAL GAS CONSUMERS' COMPANY. Before C. MAY, Esq., C.E., F.R.S., and THOMAS G. BARLOW, Esq., C.E., Arbitrators, and C. HOGGINS, Esq., Q.C., Umpire.

Reprinted from the *Journal of Gas Lighting, Water Supply, and Sanitary Improvement.*

Price 5s., bound in cloth.

A few Copies are on Sale, bound up with the Proceedings before the Parliamentary Committee on the Company's Bill in 1850—price 7s. 6d.

W. B. KING, Office of the "JOURNAL OF GAS LIGHTING," &c., 11, Bolt Court, Fleet Street, LONDON, E.C.

PAROCHIAL ASSESSMENT OF GAS AND WATER WORKS.
Just Published,

A FULL Report of the Arguments and the JUDGMENT of the COURT of QUEEN'S BENCH, delivered on February 25, 1859, in the case of the WEST MIDDLESEX WATER-WORKS COMPANY and the OVERSEERS of HAMPTON.

Price 1s.; by Post, 1s. 1d.

Also, uniform with the above, price 2s.,

A REPORT of the Appeal of the Cam-BRIDGE GASLIGHT COMPANY *versus* the GUARDIANS of the CAMBRIDGE UNION, heard at the BOROUGH SESSIONS on Saturday, January 8, and Friday, January 14, 1859.

W. B. KING, Office of the "JOURNAL OF GAS LIGHTING," &c., 11, Bolt Court, Fleet Street, LONDON, E.C.

PADDON and FORD respectfully invite the attention of Gas Companies and Managers to their PATENT STREET LAMP REGULATOR, which ensures any required consumption.

By its use a great saving is effected, and the item of "Unaccounted-for Gas" considerably decreased.

PADDON and FORD, Patent
GAS-METER AND APPARATUS WORKS,
GRAY'S-INN-ROAD, LONDON,

Manufacturers of WET and DRY GAS METERS, STATION METERS, GOVERNORS, EXPERIMENTAL APPARATUS, LANTERNS, &c. &c.

Contractors for the erection or alteration of Gas-Works; and every description of Apparatus required in Gas-Works supplied.

THE COUNTY and GENERAL GAS
CONSUMERS' COMPANY (LIMITED).
Capital, £50,000 (with power to increase).
In 10,000 Shares of £5 each; Deposit, £1 per Share.
CHAIRMAN—E. H. J. CRAUFURD, Esq., M.P.
DEPUTY CHAIRMAN—ERASMUS WILSON, Esq., F.R.S.

Established for the purpose of lighting provincial districts of 2000 inhabitants and upwards.

The Company is in possession of several works, producing a valuable and increasing rental, and the Directors are prepared to purchase or erect works in localities where the consumers are willing to contribute a proportion of the necessary capital by subscribing for shares in the undertaking.

A Dividend at the rate of 5 per cent. per annum was declared at the last general meeting.

Prospectuses and all other information may be obtained at at the Offices, 76, King William Street, LONDON, E.C.

R. S. PARKER, Secretary.

CHARLES BOTTEN and SON,
ENGINEERS & METER-MAKERS,
CRAWFORD PASSAGE, RAY STREET,
CLERKENWELL, LONDON (E. C.).

Manufacturers of Station and Patent Protector Consumers' Meters, Patent Slide-Valves, Gas-Fittings, Pipes, &c.

Also, High-pressure Cocks, Hydrants, Closets, and all Water-Fittings.

J. W. GRAZEBROOK, 75, Old BROAD STREET, LONDON,

Having applications for New and Second-hand Gas Apparatus, would be obliged by those Companies having Apparatus to dispose of, to send particulars. And Companies requiring Apparatus are solicited to apply.

PIPES, RETORTS, TANKS, GASHOLDERS, &c. on Shortest Notice.

STOURBRIDGE and NEWCASTLE FIRE GOODS. CONTRACTS TAKEN.

TO THE GAS COMPANIES
OF GREAT BRITAIN AND THE CONTINENT.

CANNEL AND COAL FOR GAS PURPOSES.—Fifteen years' connexion with one of the largest Gas Concerns in England, enables us from practical experience to certify that the CANNEL and COAL we offer are those best suited for Gas purposes.

On application, we shall have much pleasure in forwarding our Tabulated Statements of Analyses, with Prices and Terms; also References as to respectability.

All Contract Orders have our careful and best attention.

EMANUEL TURNER and Co., Exporters of Cannel and Coal, 34, Castle Street, LIVERPOOL.

JOHN ROGERSON and CO.,
NEWCASTLE-ON-TYNE & MIDDLESBRO'-ON-TEES.

Wrought and Cast Iron Pipes, Cast-Iron Retorts, and all kinds of Foundry Work necessary for Gas-Works. Fire-Bricks and Clay Retorts. Gas Coals of every description. Pig, Bar, and Plate Iron.

ADDISON POTTER,
WILLINGTON QUAY,
NEAR NEWCASTLE-UPON-TYNE,
Manufacturer of Clay Retorts, Fire Bricks, and every description of Fire Clay Goods.

WILLIAM STEPHENSON & SONS,
THROCKLEY,
NEWCASTLE-ON-TYNE,
MANUFACTURERS OF EVERY DESCRIPTION OF
FIRE BRICKS, CLAY RETORTS, LUMPS, TILES,
&c. &c.

LONDON OFFICES:
76, KING WILLIAM STREET, CITY.

A large stock of Fire-Clay Goods always on hand in London, at the lowest wharf prices, at Messrs. CHRISTIE & Co.'s Wharf, 64, Bankside, SOUTHWARK.

WALTER MABON, Engineer,
ARDWICK IRON WORKS, FAIRFIELD STREET,
MANCHESTER,
Manufacturer of
IRON TANKS for Gasholders, Railway Stations, &c.

GASHOLDERS.—Extensive premises at Gorton, solely for the manufacture of Gasholders, and other heavy Wrought-Iron Structures.

GAS APPARATUS.—W. M. has an extensive assortment of patterns for Purifiers from 4 feet to 15 feet square, also round ones from 4 feet to 10 feet diameter; Scrubbers, Condensers, Washers, Columns, Girders, and Tripod Patterns, suitable for Gasholders, from 10 feet to 150 feet diameter, either Single-lift or Telescope. Contractor for Gas Works of any Magnitude. Designs, Specifications, and Estimates furnished.

WROUGHT and CAST IRON ROOFS for Railway Stations, Gas Works, Warehouses, and Sheds, prepared for Slates or for Corrugated Iron.

IRON HOUSES, either for Dwellings, Manufactories, or Public Buildings.

PIPES and VALVES, for Gas and Water, from 2 inches to 48 inches bore.

WILLIAM RYDER, General
MINERAL AND METAL AGENT AND MERCHANT, 4, DEAN STREET,
NEWCASTLE-ON-TYNE,
is prepared to supply Gas and Water Companies with Apparatus and Appliances of every description, including Cast and Wrought Iron Goods, Coals, Fire-Bricks, Retorts, &c. &c.

Any communications addressed to him as above shall have prompt attention.

LESMAHAGO GAS COAL.

JAMES FERGUSON and CO., Lessees of the Auchinheath and Craignethan Gas Coalfields (the most extensive and valuable in the parish of Lesmahago), respectfully intimate to the Managers of Gas-Works and Consumers of Gas Coal, that he is prepared to ship the best quality of the above well-known COALS at Glasgow or Leith; and also to deliver them at the railway stations upon, or connected with, the Caledonian Railway, to any extent which may be required.

Price, free on board, or delivered at the railway stations, may be learned by addressing James Ferguson and Co., Gas-Coal Works, Lesmahago.

Shipping Agent for Glasgow:
MR. ALEXANDER STRATTON,
159, WEST GEORGE STREET.

ESSON'S PATENT
COMPENSATING GAS-METER

Affords *absolute security* both to Gas Companies and Consumers, by maintaining a *constantly accurate Water-Level under all circumstances*, by means so simple and effective as to baffle and remove those objections which have been successfully urged against other complicated contrivances professing the same object.

MANUFACTURED ONLY BY

WILLIAM COWAN,

Buccleuch Street Works, EDINBURGH;

AND

Commercial Chambers, Ridings Court, St. Mary's Gate, MANCHESTER.

ESTABLISHED 1827.

By Her Majesty's Royal Letters Patent.

JAMES MEACOCK,

PATENT DRY and IMPROVED WET GAS-METER WORKS,

7, SNOW HILL, AND 16, WEST STREET, LONDON.

ESTABLISHED 1836.

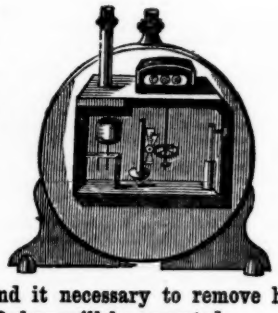
J. MEACOCK begs to call attention to his patent method of securing the Leather diaphragm of his Dry Meter. Instead of using the soldering iron for this purpose, it is held between two flat Metal Rings, and screwed up sound to a metal frame, as shown in the drawing.

By this improvement the perishing effect of hot tools to leather being avoided, its durability must be longer; also, its repair when needful is most simple, as a new leather diaphragm can be applied by merely unscrewing the old one from the rim or frame to which it had been screwed up.

Meters of Gas Companies being subject to so much wear and tear, J. M. begs leave to assure those who may honour him with their commands, that nothing but the stoutest materials for cases, the hardest gas-resisting metals, and best foreign leather for the interiors, will be used, and none but first-class workmen employed in their construction.

Wet Gas-Meters Repaired and Reconstructed with J. Meacock's Modern Improvements.

METERS SENT ON APPROVAL.



In consequence of the great demand for the above Meters, J. Meacock has found it necessary to remove his Manufactory to more extensive Premises, 16, West Street, Smithfield, where Orders will be executed on the shortest notice.

EDWARD COCKEY & SONS'

PATENT GAS VALVES.

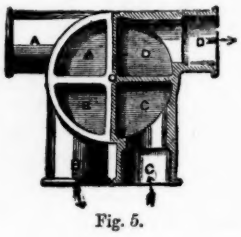


Fig. 5.

THESE Valves are formed of two cast-iron cylinders, with segmental divisions, having faces ground gas-tight, the upper cylinder turning horizontally on the lower one.

The lower cylinder has pipes from each division communicating with the vessels to and from which gas is to be passed. The upper cylinder has corresponding divisions, so arranged as to direct the passage of gas to the different segmental divisions in the lower part, and when it is turned on the face of the lower one to alter the flow of gas from one vessel to another.

Fig. 6.

Fig. 5 represents the Valve arranged for a bye-pass, in which, by turning the upper cylinder, Fig. 6, the Gas is directed either through the bye-pass, or through the vessel to which it is attached.

Another arrangement is just completed for two purifiers, by which the Gas may be directed through both purifiers together, entering either first, or through either purifier separately. The advantages of this arrangement will be too manifest to Gas Manufacturers to need comment.

The Valves are manufactured by the Patentees at their

IRON WORKS, FROME SELWOOD.

The following Testimonial has been received from an eminent Engineer:—

Gaslight and Coke Company's Office, Cheltenham, Jan. 17, 1859.

Messrs. Cockey and Sons, Frome.

Gentlemen,—The Patent Purifier Centre Valve which I had fixed instead of the common hydraulic valve for one of our sets of purifiers with 9-inch connexions, I am happy to say continues to afford satisfaction both to myself and to the workmen who have the charge of it.

I am, Gentlemen, yours truly, W. ESSON.

EDWARD COCKEY AND SONS

ALSO MANUFACTURE

PURIFIERS, SCRUBBERS, CONDENSERS, AND OTHER IMPROVED GAS APPARATUS,

HAVING PATTERNS SUITABLE FOR GAS-WORKS OF DIFFERENT SIZES.

FIRE-CLAY GAS RETORTS.

ESTABLISHED IN 1795.

JOSEPH CLIFF,

WORTLEY FIRE-BRICK WORKS, near LEEDS.

THESE RETORTS are unrivalled in excellence, being the BEST FINISHED INTERNALLY, and THE MOST CORRECT IN FORM, of any in the Kingdom. From the peculiar composition used in working up the face of the material, they are rendered unusually smooth, close, and FREE FROM SURFACE CRACKS, thus, in a great measure, preventing leakage and the adhesion of carbon to their interior surface.

To meet the yearly increasing demand of UPWARDS OF THIRTY SEASONS and to carry out the late improvements in the manufacture, the Premises have been re-erected and much enlarged, and Engineers may rely WITH CONFIDENCE on their orders being completed with a greater regard to despatch than by any other House.

THE WORKS ARE WELL SITUATED

For EXPORT from the Ports of { LONDON, LIVERPOOL, HULL, MIDDLESBRO', HARTLEPOOL, and STOCKTON.

FIRE-BRICKS, LUMPS, GUARDS, TILES, AND CLAY OF THE SAME QUALITY.

M. B. NEWTON, London Agent, No. 4, Wharf, King's Cross Goods Station.

BIRTLEY IRON WORKS,
CHESTER-LE-STREET,
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Manufactory for every description of Casting and Machinery for Gas Works and Water Works.

Warehouse in London for Cast-iron Pipes and Connections of all sizes and in any quantity, Scott's Wharf, Bankside, Southwark.

Office in London, Mr. E. M. PERKINS, 78, Lombard Street.

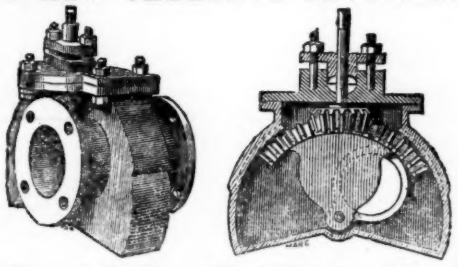
HARRIS and PEARSON,
PROPRIETORS OF
BEST CLASS-HOUSE POT AND CRUCIBLE CLAY.
MANUFACTURERS OF
FIRE BRICKS GAS RETORTS &C.
AMBLECOTE FIRE CLAY AND BRICK WORKS, STOURBRIDGE.
Late in the occupation of I. and W. King. Originally J. Pidcock, Esq.

GEORGE CUTLER, Gasholder MAKER,

No. 8, WENLOCK-ROAD, CITY-ROAD, LONDON.

Contracts for Tanks, Gasholders, Roofs, Purifiers, and all descriptions of Gas Apparatus executed on the most reasonable terms. Improved Slide Valves, Steam, and Range Boilers, and Smiths' Work, of the best materials and workmanship.

BEST AND CHEAPEST SLUICE-COCK.



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Above 3-inch diameter, price 10s. per inch. Brass face, 6d. per inch extra.

Can be taken to pieces without being removed from the line of Piping.

NORTH WILTS FOUNDRY, DEVIZES.

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"ALL DOUBTS REMOVED."

DEFRIES' celebrated Dry Gas-METERS, of which there are 80,000 in use in Palaces, Churches, Chapels, Royal Dock-yards, Club Houses, Public Offices, and other buildings throughout the Empire, the Continent, and Colonies.

His meter for 1500 lights, in use upwards of ten years at the Royal Italian Opera, until that building was destroyed by fire, was long afterwards dug out of the burnt ruins, then tested by the Chartered Gas Company and found inflexibly correct.

On the 9th of June, 1858, at the Western Gas Company, his meter for 150 lights, after considerable use, was doubted, and subjected to the most variable tests, from the full lighting down to a single jet, and in each case, as in numerous other instances, accuracy was finely indicated.

His two large meters at the Thames Tunnel have been in constant use day and night for upwards of twelve years (one continuation of dark hours), subjected to the wear and tear of 75 years, as compared with the ordinary hours of using gaslight above ground.

Gas Companies honouring Mr. Defries with their commands for his PATENT DRY METER, which has done so much service in simplifying the fitting up of gas, as well as checking surreptitious burning, will be guaranteed perfection for five years free of charge.

Defries' Prize-Medal Gas Baths, Gas-Cooking and Heating Stoves. The Polytechnic Gas Fire, with indestructible fuel, in daily operation (Saturday excepted) at the Office, 406, Euston Road, Fitzroy Square, LONDON.

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ORLANDO BROTHERS,

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AND EVERY DESCRIPTION OF

TUBULAR GLAZED SEWERAGE PIPES, BENDS, JUNCTIONS ETC.

FIRE-BRICKS, TILES, BLOCKS, AND CHIMNEY-TOPS.

WILLIAM INGHAM AND SONS,

WORTLEY FIRE-BRICK AND RETORT WORKS,

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Leeds.

W. INGHAM and SONS, having for many years been extensively engaged in the Manufacture of

RETORTS AND FIRE-BRICKS FROM THE CELEBRATED WORTLEY FIRE-CLAY,

beg to call especial attention to their RETORTS, which have for many seasons proved to be unsurpassed in quality by any in the Kingdom, their FREEDOM FROM CRACKS and the ADHESION OF CARBON rendering them worthy the attention of all parties interested in the making of Gas.

The Works are of such magnitude as to ensure the prompt execution of orders to any extent.

Estimates for Setting, or Bricklayers sent when required.

GAS OVENS IN SEGMENTS OF EQUAL QUALITY.

London Agents: CHADWICK and AKEROYD, Willington Stone Wharf, Regent's Park Basin.

A large stock of Fire-Bricks, Fire-Clay, Terra Cotta, and Drain-Pipes of all sizes kept in London at CHRISTIE & CO.—Wharf, 64, Bankside, Southwark, where all particulars of Prices, &c., may be obtained.

N.B.—Export orders continue to have prompt attention.

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GAS ENGINEER, MANUFACTURER OF GAS-METERS, GOVERNORS, AND EVERY DESCRIPTION OF GAS APPARATUS,
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CONSUMERS' METERS at the List Price, with a Liberal Discount to Wholesale Purchasers.

THOMPSON'S BROMINE TEST, £1. 1s.—BROMINE, 3s. per Ounce.

BISULPHURET OF CARBON TEST, £2. 2s.

APPARATUS FOR DETERMINING THE HEATING POWER OF SAMPLES OF COAL AND OTHER DESCRIPTIONS OF FUEL, £5. 5s.,
INVENTED BY LEWIS THOMPSON, ESQ., M.R.C.S.

REGISTERING PRESSURE GAUGE, Net Price, £8. Glass Shade, 10s. extra.

STATION METERS, PRESSURE GAUGES, PHOTOMETERS, SPECIFIC GRAVITY APPARATUS, &c.

JAMES OAKES and CO.,
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AND
WENLOCK IRON WHARF, 20, WHARF ROAD, CITY ROAD, LONDON,

Beg to inform Gas and Water Companies and the public, that they keep in stock in London all the CASTINGS in general use in Gas and Water Works, including best cold-blast Iron Retorts, Socket and Flange Pipes of all sizes, Bends, Branches, Syphons, Lamp Columns of various patterns, &c.

N.B.—Orders for Cast-iron Tanks, Girders, Columns, Cylinders, and all irregular castings, will have immediate attention.

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Manufactory—Broad Street, Birmingham—Established 1807,

MANUFACTURERS OF GLASS CHANDELIERS, GLASS LUSTRES, TABLE GLASS, &c. &c.

ELEGANT CRYSTAL GLASS CHANDELIERS, for GAS, from £4 upwards (Made from "REGISTERED" DESIGNS), with GLASS BRANCHES, &c.; suitable for DRAWING-ROOMS and BALL-ROOMS. The more extensive use of GAS in private dwellings has induced Messrs. OSLER to direct their particular attention to the manufacture of this class of articles—which, with a view to their general adoption, are offered at very moderate prices. Purchasers can select from a great variety of patterns, to which additions are being constantly made.

THEATRES, CONCERT, ASSEMBLY, AND BALL ROOMS LIGHTED BY ESTIMATE ON THE LOWEST TERMS.

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PATENT IMPROVED DRY GAS-METER,

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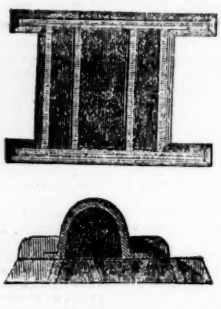
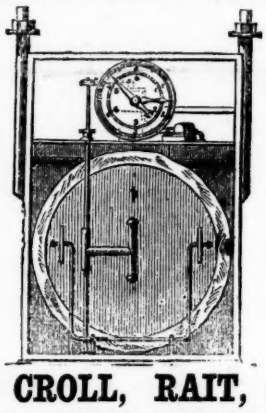
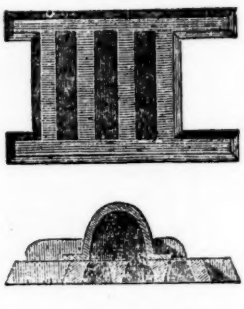




OLD VALVE.



Manufactured by CROLL, RAIT, and CO., LONDON.

FACTORY—Canal Bridge, Kingsland Road, N.E.

Messrs. CROLL, RAIT, and Co. beg to draw the attention of Gas Companies to the Removal of their Manufacturing Business from Blundell Street to the Kingsland Road, where they request that orders for Meters, or returned packages, may be sent.

In consequence of the peculiar facilities which the new premises afford for the Manufacture of Meters, Croll, Rait, and Co. can promise with great confidence immediate attention to all orders they may be favoured with.

The Meters manufactured by Croll, Rait, and Co. have met with a large amount of patronage—the Alteration in the Valves having been pronounced to be a simple but great improvement.

Mr. Croll is the Sole Proprietor of Patent Rights for this Meter in America, and Mr. John O'Neil, of Boston, U. S., is the Firm's Agent.

Gas Companies ordering these Meters may rely upon obtaining Durability combined with Correct Registration and Steadiness of Light.

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DOUBLE CONE, ALBERT, SHADOWLESS, & EVERY DESCRIPTION OF BURNER, UNION JETS, BATSWINGS, ETC.

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CAST & WROUGHT-IRON PIPE, BLACK & GALVANIZED. COPPER. TIN, BRASS, & COMPOSITION TUBING.

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Large Pattern Books, with every description of Gas-Fittings, Chandeliers, &c., with complete Book of Prices, 12s.

London: Printed by WILLIAM BOUGHTON KING (at the office of Joseph Clayton, 17, Bouverie Street, Fleet Street); and published by him at No. 11, Bolt Court, Fleet Street, in the City of London.—Tuesday, April 26, 1859.